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THE AMERICAN FARMER

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CONTENTS.

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American Farmer
1729 New York Ave.
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THE AMERICAN FARMER.

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TRANSPLANTED AMERICANS.

The Apaches of Arizona in their New Quarters in the Southeast.

NOT MANY years have passed since the country was treated to a sensation every few months in the shape of a story of horrors from the Mexican border. The desert region of New Mexico and Arizona was inhabited by a group of kindred tribes known as Apaches. After they had been gathered together upon several reservations they made things lively for the troops stationed in that section by breaking away repeatedly upon murderous forays, which they would close by crossing the line into Mexico and hiding in the fastnesses of the Mexican States of Sonora or Chihuahua.

In addition to the damage done to settlements on the American side, they threatened once to even involve us in international complications with Mexico. When they were at last captured they were removed to old Fort Marion, at St. Augustine, Fla., and thence to a more convenient place near Mobile, Ala.

In the meantime they seem to have been entirely forgotten by the public and receive as little attention in the popular mind as the Poncas, whose cause a few years ago threatened to rend the heart of Boston in twain.

GROUP OF APACHE CHILDREN.

The writer embraced an opportunity recently to learn something of these transplanted savages which will be of general interest.

Some photographs were also obtained of several warriors as they appeared on their arrival fresh from the scenes of their marauding. A picture made from a photograph of a group of children is also given, taken prior to their departure for one of their larger schools in the North.

Upon their arrival in Florida these Indians seemed possessed of great timidity, and seemed afraid of being killed if they wandered far from the fort. They spent most of the time in playing a game in which all, old and young of both sexes,

JOSAN, AN APACHE WARRIOR.

joined. They used wooden hoops about 15 inches in diameter, with poles 10 or 12 feet long. The game consisted in rolling the hoops very rapidly across a level piece of ground and throwing the pole through it as it passed the player without stopping the hoop. At this game, at which they were very expert, they played for hours at a time, and evinced as much interest over the result as an Englishman over the Derby. They also spent a good deal of time making bows and arrows and shooting at birds along the shore of Matanzas River, on which the fort stands.

A good deal of trouble was evinced in getting them to abandon their Medicine Man and accept civilized treatment for their ailments. They were quick, however, to perceive the good results of treatment by the physician in charge, and afterward showed marked faith in his powers of healing.

One woman who had lost her husband in the campaign against the troops came to the doctor for relief for the distress she felt in the region of her heart. She imagined that quinine would cure grief as well as ague.

Since they have been living in Alabama a marked improvement has been wrought in their condition. This will be best shown by the following extracts from a letter recently written by the Army officer in charge of the Indians at their place of residence near Mobile: "I will gladly give you any information in my power. I was detailed for special duty with these Indians by the Secretary of War. My instructions were purposely vague, the intention of the Department being to leave me as free as possible in the management of them. I have followed only common sense methods, and whatever results have followed for good, have, in my opinion, resulted from two causes: First, the common sense methods used, and, secondly, the natural good dispositions and anxiety for improvement of the Indians.

When I reached Mount Vernon I found the Indians much depressed and the death rate very high, ranging from 10 to 15 a month, which, considering the total

SANTAGUEE.

number was 378, was a very serious condition of affairs. Two causes, in my opinion, contributed mainly to this high death rate—consumption and homesickness. Whilst many local causes contributed, such as improper location of the village, lack of proper police and treatment by Indian doctors, this has been so changed by correcting these evils that the death rate is reduced to one, two, and three per

CARLOS.

month. Consumption has almost entirely disappeared, and the deaths for the last six months have been from other causes. Of course, I do not mean that such a disease as consumption has been entirely eliminated; it may break out again at any time, but with the people bright, cheerful, well-housed in healthy location, good hospital and thorough police of their houses and grounds, much will be done to check it.

"The Indians have taken contracts for cutting cord wood, sawing logs, etc., during the past year, and have made much money, which they have been permitted to use as they saw fit. No man can learn the value of labor unless he enjoys the fruits of it. Some have saved money and all have added comforts, both in the way of living and dressing. They have built themselves an entire village of wooden houses regularly laid out. Each house has two rooms, glass windows, chimney, etc. All the work was done by the Indians without other assistance than I could give them with the aid of a foreman, and some have shown great skill as carpenters. Wells have been sunk, land cleared or partly cleared for gardens and farms, and they cook their food on stoves and eat it off china and tables. A school with two teachers is in session, and the youngsters learn rapidly. I have a company of 78 enlisted in the regular service. They have progressed most rapidly, and in a few months learned to drill as well as any white troop. Fifty per cent. have learned to sign their names to muster and clothing rolls. This I consider but the beginning.

"To have taught them habits of industry, the value of labor, better modes of living, to give up many superstitions, and, last, but not least, to give up gambling, is something; but all this is but a step in the direction of solving the 'Indian Question.' It is the foundation upon which permanent reforms can be built.

CLOTONY.

"I refer only to your friend Chihuahua. He is, as you say, considerable of a man. He is, however, much inferior in mind to many others, and has no faults that will hold him back. He is intensely conservative and about the most indolent man of the band. His greatest virtue is his cleanliness and neatness in dress and person. I am trying the experiment of putting him in charge of the children's school to keep them in order and see to their regular attendance. I hope he may do well, as it is about the only kind of work he is fitted for. Compared with such men as To-clanny and Geronimo he is inferior. The latter I have been using as the judge of my Indian court. He shows great skill in settling disputes, and is most just in all his judgments.

"The geneal condition of these Indians I cannot but think has much improved, and, as stated above, much of this improvement is due directly to themselves. They are exceedingly bright and quick to learn, are industrious and hard working, and very soon learn to manage tools with skill. These traits can, I believe, be cultivated to advantage and in time give them lucrative occupation and free the Government from the cost of maintaining them. They have the confidence of the people amongst whom they live, and are permitted to roam about the country, go to the city of Mobile alone, and do whatever they please when not at work. Not a single complaint has been made of them in many months."

Among the Digger and Ute Indians there is no edible so highly esteemed as the common grasshopper.

BEET SUGAR.

The Utilization of Second and Waste Products in its Manufacture.

BY WALTER MAXWELL, U. S. DEPARTMENT OF AGRICULTURE.

FREQUENTLY the sugar beet factories make a good deal of money after the sugar has been made. In an article upon the manufacture of beet sugar contributed to THE AMERICAN FARMER we left quite untouched the subject of the utilization of second and waste products, intending to speak of it in a separate contribution.

Before proceeding to consider the actual second products of the manufacture, we shall speak of the values of the beet tops, which are removed from the beets usually before the latter leave the field. In a previous article upon the development of the root and foliage of the beet, we showed that the chief part of the matters taken up by the crop from the soil is found in the leaves, and that the substance of the root, or the real beet, is more chiefly formed from bodies that are gathered by the plant from the air. The root of the beet is rich in sugar, and contains a low per cent. of mineral matter. The neck of the beet, which must be considered in its nature as being half root and half leaf, is much more poor than the root in sugar and proportionably richer in mineral substances. The leaves contain no sugar, but a maximum amount of the bodies drawn from the soil, which bodies are essentially necessary to the fertility of the ground. From the ground of the relative amounts of mineral matters found in the root and foliage of the beets we have to conclude that the root is naturally adapted for use as food, whilst the leaves are more suitable for fertilizing uses.

The conclusions indicated by the comparative compositions of the root and leaves of the beet are borne out in the results of actual experience. Cattle and sheep eat readily, and even ravenously, of the tops of beets, mangolds, turnips, etc.; but we have never observed any of these green matters to be consumed in excess without a distinct harm appearing to the animals. When walking over the beet fields of Mr. Dufay (France), we asked his opinion of the value of the tops for fertilizing and feeding purposes, respectively. He replied: "The leaves help to fill up the cattle, but they have little feeding value. Upon sheep they act very deleteriously, producing not only great laxiety of the bowels, but they affect the kidneys, on account of the large amount of alkali salts contained in them." And in respect of the fertilizing value of the tops, Mr. Dufay continued: "The leaves are rich in the very mineral bodies which are required for future crops. If they are allowed to lie just where they are cut off from the beets there is the most equable distribution possible of the mineral matters which have been drawn from the land by the crops just grown, and which are demanded by the crops to come. Unless there is a special necessity for using the tops as feed, I am opposed to such a course; because, as an article of feed, their value is doubtful, but as a fertilizer it is certain and great."

Against the opinion of the Frenchman, Mr. Dufay, we place the observations of Prof. Mærcker, Halle, Saxony. The latter gentleman has devoted time and care to the study of the economic values of all beet products, and his statements are received with great respect. Prof. Mærcker says: "There is one source of food for cattle which has not received the attention it deserves—that is, the leaves of the beet. At present those materials are merely browsed by sheep on the land where they lie, and the greater part is trodden into the soil. In some instances the tops are mixed with the diffusion pulp and preserved in silos, or the leaves are preserved in the silo alone."

From experiments made by Mærcker in feeding sheep with beet leaves and beet pulp, respectively, the following results were observed: "Ten sheep received 125 pounds of leaves in the form of ensilage, and another 10 sheep received 90 pounds of beet pulp, care being taken that the other foods given to the animals contained the same amounts of feeding matters. The increase in weight of the sheep fed on leaves was 3.4 pounds, and those fed on pulp 4.1 pounds, showing an apparent advantage in favor of the latter of 23 per cent. From the standpoint of economy, however, the case was otherwise. The gain of 10 sheep fed on the pulp was 4.6 cents per head, whilst the money value of the increase in those fed on the leaves was 6.4 cents per head."

Prof. Mærcker's results give the comparative feeding values of beet pulp and beet leaves. He, however, does not give any comparative estimate of the values of the leaves for feeding and fertilizing purposes. It is true that there are situations where the feeding value of the tops may be greater than the value as a fertilizer. Near large towns, where large dairies are kept for the direct supply of milk, the green tops may be turned into the article of human consumption with profit. And, moreover, fertilizing agents can be obtained from the city to replace the beet leaves removed. In such a special instance as we have given the feeding value may be greater than the natural manure value of the leaves. In cases in general, however, the conditions given above do not obtain, and the results of experience indicate that, as a general principle, the beet leaves have a greater value when left upon the ground to rot for the use of the next crop than when used as feed.

The "diffusion pulp," or the finely cut-up beets from which the sugar has been extracted, is a most valuable feeding material. Its value for feed is so great that it is not necessary to consider the comparative property as a fertilizer. Moreover, as it has already been said, its relative fertilizing value is small.

The fresh pulp, after leaving the hydraulic presses, contains as much as 70 per cent. of water, and is not in a condition for storing excepting in silos as ensilage. There are objections to preserving the pulp in that form, and processes have been devised for the wholesale drying of the material, thus driving off the water until no more is remaining than is usually present in good hay. In such a form the pulp can be indefinitely preserved.

The composition of such dried pulp has been determined as follows: Water, 11.6 per cent.; ash (mineral matters), 7.1 per cent.; albumenoids (flesh formers), 6.6 per cent.; vegetable fiber, 19.3 per cent.; starch and gum-like bodies, 54.8 per cent.; fatty matters, 0.6 per cent. Total, 100 per cent.

In order that the food value of the pulp can be approximately estimated from the analytical table given, we give a corresponding analysis of a sample of well-cured meadow hay. We say "well-cured meadow hay," because of the extreme differences in the values of hay, which are regulated by the time and mode of making it. In proportion to the time that grass stands uncut after the period when it is at its best, is its lessened value for feeding purposes. Experiment has shown that if the crop is not cut at the right moment the constituents of nutrition go over very largely from a soluble into a more insoluble state, and consequently are of less value as flesh, heat, and energy producers. The composition of meadow hay is as follows: Water, 14.59 per cent.; ash (mineral matters), 6.54 per cent.; albumen (flesh formers), 10.11 per cent.; vegetable fiber, 25.52 per cent.; starch and gum-like bodies, 40.90 per cent.; fatty matters, 2.34 per cent. Total, 100 per cent.

From the comparative tables given it is seen that the pulp is less rich in nitrogenous matters or albumenoids than meadow hay. The pulp, however, contains a higher amount of nitrogen—free matters, such as the starch and gum-like bodies—than hay; but the carbohydrates present in hay (exclusive of cellulose) have a higher per cent. value than those contained in pulp. In pulp it is further seen that no fatty bodies of any amount are present.

The comparative values of hay and pulp for feeding purposes are estimated as follows: One ton of clover hay is equal to 2.5 tons of pulp; one ton of timothy hay is equal to 3.0 tons of pulp; one ton of meadow hay is equal to 3.0 tons of pulp.

In order to obtain the greatest value from the use of beet pulp as an article of diet, care must be given to the selection of the other foods fed with the pulp. The best supplementary food is cotton-seed meal. The meal is rich in flesh-forming matters or bodies containing nitrogen, and we have seen that the pulp is deficient in those. Cotton-seed meal likewise contains a high amount of fatty matters, of which the pulp is quite without. But the pulp supplies the non-nitrogenous matters in which the meal is less rich. Linseed meal is also a good food fed with pulp, but it must not be fed so liberally as the cotton-seed meal. From the standpoints of diet and economy, cotton-seed meal is the better food. Cornmeal is less economical because it is specially rich in nitrogen—free matters, although it contains a good amount of nitrogenous bodies. If, however, cornmeal is largely fed with the pulp, much of the chief constituents of the latter will not be fully utilized by the animal organism, because the starch bodies of the corn are more easily appropriated than similar bodies in the pulp, and would be used in preference, and much of the starch and gum-like matters in the pulp would pass through the animals unused.

"French farmers," we are told, "consider it better to feed the pulp to sheep and cattle for the production of meat, rather than for making milk. The daily rations given are five pounds to sheep and 50 pounds to feeding cattle daily. An admixture of cut hay, seed meal, and cornmeal is made with the pulp." When we were in the north of France two years ago we observed the whole of the pulp coming from the factories being placed in silos for gradual consumption by fattening cattle, or being used immediately. In Saxony, at a large factory near to Halle, we saw 109 cows in full milk chained up by the neck, and being fed almost wholly by the undried pulp as it came fresh from the factory. Halle is less than five hours by railroad from Berlin, and the milk was shipped to the German capital twice daily.

When beets are supplied to the factory by farmers they have the privilege of hauling back the pulp, the latter being received as part payment for the beets. As an indication of the great value placed upon the pulp by the farmers, a contract shown to us stipulated that $5.50 per ton should be paid by the factory for the beets, and that the farmers should pay $2 per ton for the pulp if they wished to have it. The feed value per acre of the pulp from an average crop of beets is equal to an acre of meadow hay, or two tons.

An article of refuse or waste which leaves the factory is the matter which is taken from the filter presses. When the juice has been filtered through the solid matter is taken from the filter press in solid cakes. These cakes are composed chiefly of carbonate of lime, with a large admixture of organic matters that have been separated from the juices by the process of defecation. These organic matters contain a notable per cent. of nitrogen, and with the lime make up a mass possessing a large fertilizing value. In Europe these filter press refuse matters are used with great care. Upon land which is wanting in lime they are applied with excellent results.

It may appear questionable, speaking of molasses as a second product of

manufacture, as there are instances when nothing further is attempted than the production of good salable sirups. On the other hand, the molasses which are obtained after the recovery of the crystallizable sugar are, in some cases, so poor that they are not worth the cost of shipment to the markets. We have been told of instances where thousands of gallons of poor molasses have been poured into the Mississippi because they were not worth the cost of the barrels necessary to convey them to New Orleans.

The "molasses question" is one that is much discussed. The latest proposal is one to use those matters as fuel. That, however, is a proposition of very doubtful economy, as has been shown by a Louisiana chemist, Prof. Crawley.

The highest value of molasses will probably be obtained by using those products as food for cattle. They are not only rich in certain valuable nutrients, but are an excellent condiment, and used with the most satisfactory results especially in feeding young stock.

The composition of beet molasses (given as the mean of many analyses) is seen in the following: Sugar, 48.0 per cent.; ash, 9.3 per cent.; water, 20.5 per cent.; organic matters, 22.2 per cent. Total, 100 per cent.

The table shows that every 100 pounds of molasses contains 48 pounds of sugar. Sugar is a very valuable food constituent. The more recent conclusions of physiological chemistry show that the carbohydrates are the chief constituents of foods in providing and sustaining muscular activities; and sugar and starch are the two most important carbohydrates.

As it has already been said, molasses is also a valuable condiment. Damaged hay, coarse straw, and similar products, which nothing but sheer starvation would induce cattle to eat, can be made very palatable by a judicious seasoning with crude molasses.

In England, where every item of available food is used with extreme providence, we have seen hundreds of gallons of molasses used in the way suggested. The hay or straw is cut into fine "chaff." A layer of chaff is sprinkled with water in which the molasses are dissolved. A thin layer of meal is then thrown over, and another layer of chaff again, followed by the sprinkler. Finally, the whole is turned over with a shovel and thoroughly mixed, when, after lying a few hours, cattle and sheep eat it greedily.

Molasses is extensively used in the manufacture of alcohol, and the application to that use, particularly in France, is extending. Nevertheless, it his highly probable that a large proportion of low-grade molasses will be used directly as cattle food in the future.

Before closing the article we will mention what appears to us to be a highly valuable use of the sugar beet as a direct animal food. A year ago we advised a Nebraska farmer to grow an acre of beets specially for his hogs. He kept a great number of breeding sows, and likewise made a heavy weight of pork. The difficulty of keeping a large number of hogs in health where, at given seasons, they are kept up in close quarters was a grave difficulty. All around hog cholera, fever, etc., were destroying whole herds. Our advice was, "grow enough beets in order to be able to give all your hogs a few every day, and particularly the sows in breeding." We further suggested that the measure of corn given the hogs be lessened, and rather more beets given when they were shut up in the yards. The farmer has told us that he will never be without an acre of beets again. He is quite satisfied that some succulent vegetable food is the best means of preserving a herd of hogs in health, and he believes the beet is better than any other vegetable for that purpose.

BEET SUGAR WORK.

Some Items Which Came too Late for Insertion in our Last Issue Regarding the Nebraska and California Factories.

The season of manufacture of beet sugar in the Nebraska districts is progressing rapidly. By to-day's mail we learn from the agriculturist of the Oxnard Beet Sugar Company, at Grand Island, that there are only 300 acres remaining in the ground, or about enough to keep the factory running for two more weeks.

The weight or yield per acre has declined below the most moderate estimates, but the content of sugar in the beet has been extremely gratifying. The crop has worked up well in the factory, and a large output of sugar has been made with great expedition and a minimum of expense. It is not possible yet to make even an approximate statement of the actual financial results of the season of 1892. The general tone of the manufacturing companies, however, is bracing and strong, and a spirit of enterprise and assurance marks all statements that are heard, and likewise the preparations which are being made for next year's crop.

The persuasion has firmly taken hold of the leaders in the sugar beet work, and in some part of the public, that the production of beet sugar has to become a staple industry of this country, and particularly in certain States. Because immediate and great success has not followed the introductory work of the past three years the enterprise is not going to stop short. There is ample evidence that the causes of failure are want of knowledge and experience in the production of the crop, and the adjustment of labor conditions to the requirements of the industry. The culture of the crop shows an improvement each year, and labor from other parts, learning that a new branch of agricultural works is developing, is gradually accumulating in the beet-growing regions. We are firmly persuaded that our Western farmers are destined (and before very long) to be growers of home-made sugar. The stupendous sum of the country's wants, which are also increasing at a great rate, and the capability of the soil, climate, and industrial enterprise to cope with these wants, makes it an imperative certainty that our sugar must, in an increasing ratio, be produced at home.

The short time that the manufacturing campaign has been in operation in Europe does not enable us to give any opinion of the probable actual results of the season. By this date all factories are well on with the work, but data of results are not yet to hand. Agriculturally, however, no improvement is reported of the situation during the month of October. From Germany we hear that "the hopes entertained of improvement in the crops have not been fulfilled. The days were warm, with cool nights, and refreshing rains fell; in brief, the best weather prevailed, yet its effect has hardly been noticeable." Under the conditions which are considered normal and good for the beet, it has not behaved in its normal manner.

Austria complains that her crop is very light, and the recent rains have run down the content of sugar in the beet without making any observable increase in the weight per acre. The quality has gone back.

In France the results of the year are as uncertain as heretofore. George Durean tells us that "in the presence of the irregularity of the crop no careful statistician dares to form an estimate." Again he says, "an exact knowledge of the beet crop at this moment is of but little value, unless we know also the yield of sugar. This last factor will be unknown until the harvest is complete."

In Belgium the crop has increased vastly since the October rains, but the sugar has fallen to pieces in unprecedented proportions. Holland appears still to be satisfied, while in Russia "no improvement in the crop has taken place."

It is, all round, a very peculiar season. In the early Spring matters opened up with great promise. Almost phenomenal weather conditions, which in themselves were bad, but which also induced every form of insect pests, broke that promise utterly to pieces, and nothing that has happened later has enabled the crops to recover itself. It is an "off year."

The latest data from trustworthy sources upon the condition of the crop are as follows:

	Weight of Beet.	Sugar Content.
Germany	297 grams.	15.9 per cent.
France	308 "	14.3 "
Nebraska	300 "	15.5 "

From the Chino factory in California we have just the following data: "Last week the season came to an end. We have this season received 27,000 tons of beets into the factory, and we paid out for them the sum of $111,910.68. Our mean price paid for beets was $4.25 per ton for 15 per cent. beets. The sugar obtained by us this year is most satisfactory. In Europe seldom more than 13 per cent. of sugar is obtained, whilst we have paid upon beets of nearly 15 per cent. for the whole season. We have made this year 7,687,385 pounds of sugar, or about 3,874 tons. Our bounty receipts are $136,894.84."

A local paper, the *Chino Champion*, says, "What does the production of these 200 carloads of sugar mean? It means the distribution in Chino for the beets and labor of $250,000. The factory alone has paid $33,000 for labor during the campaign. Our previous remarks upon the 'coming of the sugar beet industry' are well supported in the figures just given. We are quite assured of what the beet sugar work is going to become, and of what it will do for this country. Not only California and Nebraska, but likewise other States will participate in this great addition to our agricultural resources."

The Tea-Eating Caterpillar.

An unexpected enemy, a common hairy caterpillar, has turned its attention to the tea gardens. This caterpillar was previously known and disliked in other parts of India; for any person who imprudently laid hands on it found the long hairs sticking to his fingers and producing most irritating blisters. If a hair got into a man's eye, it set up an inflammation that sometimes ended in blindness. When a horde of these hairy caterpillars unexpectedly invaded a tea garden in Assam one morning, the effects were most disastrous to the native laborers, or coolies, whose naked legs and feet came in contact with them. The women and the children who are employed in plucking the shoots and leaves of the tea plants soon found their hands and arms stinging with pain from the hairs of the caterpillars that they had fearlessly but imprudently handled. Before the morning's work could be finished 60 of the men, women, and children were obliged to go to the medical officer for relief, with their hands or feet blistered and suppurating.

There was no apparent cause to explain why these caterpillars had suddenly come out of the neighboring jungle to prey upon the tea plants, but it is to be feared that if they once acquire a taste and preference for tea leaves, the tea planter will have a new enemy to reckon with, and the cost of tea will eventually be enhanced to the human consumer. It is said by some authorities that the caterpillars have increased out of due proportion because the wild birds that used to feed on them have been reduced in number, as the native laborers in the gardens are given to the pursuit of birds, and ruthlessly destroy their eggs and the young birds in their nests. But this is hardly a sufficient explanation.—*Chambers's Journal.*

The Lost Ring.

A curious instance of the recovery of a lost ring in a root of celery occurred some years back in Sweden. A lady, when planting celery in the garden in Spring, and while dibbling holes for the small plants with her finger, unconsciously dropped the ring into one of the holes. A plant was duly inserted in the hole, and doubtless through the lost ring, and as the root grew the ring must have become imbedded in its substance. The ring had been given up for lost until the following Winter, when the mystery was cleared up by the ring making its appearance in the soup at dinner in a portion of the celery.

PROGRESSIVE AGRICULTURE.

The Most Recent Discoveries, Developments, and Ideas in the Science of Farming.

How Rocks are Formed.

HAVING thus briefly described the nature of rocks from both a physical and chemical point of view, it will prove profitable to consider them from a study of their origin.

The character of the debris left by a decaying rock is influenced in no small degree by the nature of its original formation. The more compactly a rock is made the slower, other things being equal, will be the process of its decay, and the converse of this is also true. The farmer seeking a knowledge of the nature of his fields can thus study with profit the processes by which they were originally laid down by the slow cementation of time.

Rocks Formed Under Water.

The first class of rocks to which attention is called are those which have been formed by precipitation from water. No matter what the origin of the rock particles may have been, if they have reached the state of aggregation in which they are found by precipitation from water they belong to the class of aqueous rocks. Water has been called the universal solvent. In point of fact much of the solvent power which is credited to water is really due to substances which it carries in solution. Thus pure water is almost without any action on limestone, but if it be charged with carbonic acid it dissolves limestone freely. Water charged with carbonic acid flowing over limestone formations becomes saturated with limestone in solution. When the carbonic acid escapes, as for instance when freely exposed to air, the carbonate of lime is precipitated. All have seen such accumulations of limestone about the mouths of some springs. I have seen leaves which had fallen near the mouths of certain springs completely covered and preserved by such incrustations.

The stalagmites and stalactites seen in caves have a like origin. Water which percolates through decaying vegetable matter, such as peat beds, may become charged with humic acid; and this acid carried into contact with limestone or shells may set free enough carbonic acid to saturate the water. It is in some such way as this that the solvent power of water is increased.

In other words, pure water is not a universal solvent, but it begins to partake of that character as soon as it begins to hold some bodies in solution. One body in solution helps dissolve another, and so on through the series. It is not difficult to see, therefore, how easily water may become charged with rock-forming materials, and how under changed conditions these materials may be thrown down into rock masses. The above remarks apply to the materials on or near the surface of the earth. If we look into the interior of our planet we may find other source of rock materials. It is conceded by all geologists that the temperature of the earth's interior is very high—higher, perhaps, than we have any conception of. This being the case, rock materials may and doubtless do come from the interior in a molten or even gaseous state. When these materials reach a stratum where water is found they are projected into it and precipitated by sudden cooling. In this way it is certain that some of the constituents of aqueous rocks have been secured. All kinds of rocks chemically considered may be found among the aqueous rocks.

The Oxides are found as iron ores. The formation of iron ore may be considered to be due to the action of water saturated with carbonic acid on the lower oxides of iron which are found in nearly all rocks. This lower oxide is dissolved, but when the water containing it is exposed to the air the protoxide of iron is changed to the peroxide and is then precipitated. This form of iron oxide may often be seen on the surface of stagnant ponds forming an iridescent film. These films of iron peroxide when they become heavier sink to the bottom and are collected into aggregates as they are found by the miner. Silica or sand is another of the oxides put down by aqueous agencies. It is one of the most abundant elements of the earth's crust and one of the most important constituents of the soil. Silica exists under many forms, to which different names have been given.

Opal is a hydrated form of silica occurring in veins and pockets in many rocks. Sometimes the fiber of wood is entirely replaced by silica forming petrified trees.

When mixed with a little alumina and containing some iron as a coloring matter, silica forms the mineral known as jasper. The color of jasper varies from yellow to bright red.

Chalcedony is another variety of silica occurring in a form partially permeable to light. Flint and quartz are other well-known varieties. There are many other names given to silica due to slight variations in its physical properties.

The Carbonates form an important group of the aqueous rocks. The method of their formation has been already sufficiently described. The carbonates also occur in numerous variations. I have already described the incrustations produced by springs. This is known geologically as calc, sinter, or tufa.

When the deposits are more compact and crystalline they are called travertine. The travertines are often beautifully veined and colored by metallic oxides, forming some of the finest marbles known as Mexican onyx. As already stated, the pendent formations on the roofs of caves are called stalactites, while the accumulations on the floors are called stalagmites. The two formations sometimes meet, forming a complete column.

The Silicates form also an important part of aqueous rocks. Serpentine is essentially a hydrated silicate of magnesia. In the fresh state it is soft, greasy, and has a greenish color.

Soapstone or talc is another silicate with which most farmers are familiar. Kaolin is a pure white silicate of alumina highly prized for making porcelain and the finer kinds of pottery.

Sulfur and sulfides are also of aqueous origin. The sulfur itself has doubtless reached the surface in a state of vapor in the manner already described. Galena, the common ore of lead, is a sulfide. Gypsum and alabaster are lime sulfates. In the form known as land plaster they are used largely as fertilizer. Plaster of Paris is a dehydrated lime sulfate.

The Phosphates are the most important of the aqueous rocks from the fertilizing point of view. Their origin will be more fully explained in another place.

The Chlorides are important on account of the universal use of chloride of sodium—common salt. In this country there are extensive deposits of rock salt in New York, Pennsylvania, Virginia, Ohio, Michigan, Louisiana, and Kansas. Perhaps the most extensive deposits are in Kansas. It is said that the thickness of the beds in some places in Kansas is 300 feet. Owing to the depth beneath the surface at which the deposit occurs the salt is obtained for commerce by boring a well, in which are placed two concentric tubes. Through one of these tubes water is forced into the bed of salt. The water dissolves the salt and the solution reaches the surface through the second tube. It is then evaporated and the salt obtained for commerce.

The Hydrocarbons form a small quantity of rock material known as ozokerite or paraffin. Hydrocarbons usually occur as natural gas or petroleum. The forms mentioned above are in a state of greater condensation and contain a higher percentage of carbon. I have only mentioned some of the more important rocks which have been laid down by aqueous influences. It would be tiresome and unnecessary to give a complete catalog. Enough has been mentioned to show the agriculturist how greatly he is indebted to water, which not only helped to form his soil, but long before the period of soil formation laid down the rocks which yet partially remain of high economic value.

Sedimentary Rocks.

Rocks which have been formed by aqueous agency, but in which the materials have never been in solution, are called sedimentary. Properly, they should be classed with the preceding group, since both have been formed by water. These rocks are formed mainly of fragmental material derived chiefly from the breaking down of older rocks or from the debris of plant and animal life. In general, they are stratified, or at least laid down in definite beds. These sedimentary rocks contain the fossils and other remains of prehistoric ages, and thus form the books in which are read the records of ages so remote as to be almost inconceivable to the human mind.

A distinguished writer on geological subjects, to whom I am indebted for the chief part of these papers, says of these deposits: "As will be readily comprehended when we consider from what a multitude of materials the fragmental rocks have been derived, the amount of assorting, admixture with other substances, solution, and transportation by streams these materials have undergone, they cannot be classified by any hard and fast lines, but one variety may grade into another, both in texture and structure as well as in chemical composition, almost indefinately. Indeed, many of them can scarcely be considered as more than indurated mud, and only very general names can be given them."

In general, these rocks may be divided into two chief classes, viz., those of inorganic material and those formed of vegetable and animal debris. Only those varieties which have important agricultural or economic relations will be mentioned here.

In the first group must first be mentioned the beds of sand and gravel more or less consolidated, which in their finer textures form sandstone. Many varieties of sandstone are recognized and they may be of various colors, due usually to traces of iron oxides which they contain. Conglomerate or pudding stone is only a coarse sandstone differing from other sandstone as gravel does from sand.

The Argillaceous Group.

The argillaceous, or clay, group comprises the clays or rocks, and is composed essentially of a hydrous silicate of alumina, which is the basis of common clay. But it must not be supposed that these rocks contain nothing else, for with the exception of the mineral kaolin, which is essentially a pure rock of this kind, they carry admixtures of sand, lime, and carbonaceous matter. These rocks have originated from the decomposition of feldspars, or when deposited by water they are the results of the deposition of the fine silt or clay which gives muddy water its characteristic properties. When these rocks have been deposited under great pressure they often have a shaly character, being capable of being split into thin pieces. Ordinary slate is a representation of the rock in this condition, and attention will be called to it further on.

Kaolin, as has already been mentioned, is the purest form of the argillaceous rock. It is important as being the base of all the finer pottery, such as porcelain and other ware of that kind. It is almost entirely free of all coloring matter, being often pure white without a trace of iron or other coloring oxide.

The Calcareous Group.

The lime group of rocks is the next most important one of this class. The vast deposits of limestone and marble are characteristic of this class. The original rocks from which these have been composed by geological agencies have been crushed and shattered into innumerable fragments, and then by the infiltration of other materials have been slowly cemented once more into solid rock.

Volcanic Dust.

Some kinds of the volcanic group of rocks also belong to this class. They have been formed chiefly from the lavas or from the ashes, dust, and sand projected from the craters of volcanoes. The name tufa is given to the entire group of volcanic materials, and also by some authorities to the fragmentary rocks resulting from the breaking down and reconsolidation of older volcanic lavas.

The Ferruginous Group.

The iron group, the last of this class which shall be mentioned, is perhaps undervalued from an agricultural point of view, inasmuch as iron minerals are looked at chiefly as sources of raw material for blast furnaces. The importance of iron, however, in the soil, from an agricultural point of view, has already been alluded to in these papers, and must be emphasized here. Just as in the blood, a trace of iron is essential to healthy nutrition, so in the soil a trace of iron is indispensable to the proper growth and nourishment of plants. As far as bulk and magnitude, however, are concerned, the ferruginous group of rocks is of but little importance.

Rocks of Plant or Animal Origin.

The second great class of rocks referred to above are those composed mainly of the debris from plant and animal life. In this group is found the infusorial or diatomaceous earth, which is so useful for many purposes aside from agriculture. This is composed of a fine white or pulverulent rock, consisting mainly of minute shells or diatoms which are often so soft and friable as to crumble when pressed between the thumb and fingers. It occurs in beds which, when compared with the other rocks of the earth's crust, are of comparatively insignificant proportions but are still of great economic value. Considerable deposits of this earth are found in this country, in New Jersey, and especially in Virginia extending from Richmond to Petersburg, where the bed of infusorial earth is sometimes 30 feet in thickness. Some considerable deposits of it have also been found in New Mexico and California. Infusorial earth is mainly used for polishing powder, and for this reason has been called tripolite. It is also used to absorb nitroglycerine in the manufacture of dynamite.

Calcareous Deposits.

Rocks of plant or animal origin also contain a calcareous group. These rocks are made up chiefly of the remains of mollusks, corals, and other marine and freshwater animals. The celebrated coquina stone from near St. Augustine, Fla., is a rock of this kind. Coral and shell limestone are also familiar samples of this kind of rock. Chalk also belongs to this group.

Vegetable Deposits.

The most important of these groups, however, are the rocks or deposits of carbonaceous matter known as peat, lignite, coal, etc. These rocks are made up of the more or less fragmental remains of plants. In many of them, as in the peats and lignites, traces of plant structure are still apparent. Other forms show no traces of plant life, but the rocks appear to have been subjected to great heat and pressure, so that they have been considerably altered from their original form. Anthracite coal is a rock of this nature.

Dr. Merrill describes the origin of these rocks in the following words: "Plants when decomposing upon the surface of the ground give off their carbon to the atmosphere in the shape of carbonic acid gas, leaving only the strictly inorganic or mineral matter behind. When, however, protected from the oxidizing influence of the air by water, or other plant growth, decomposition is greatly retarded, a large portion of the carbonaceous and volatile matters is retained, and by this means, together with pressure from the overlying mass, the material becomes slowly converted into coal. According to the amount of change that has taken place in the carbonaceous matter, the amount of gaseous matter still contained by it, its hardness and burning qualities, several varieties are recognized."

Peat.

The most important variety mentioned above is peat, in which the carbonaceous matter is least changed. It is formed simply on the surface or under a thin covering of water, producing a deep vegetable mold. It is often called muck, and is suitable for agricultural purposes.

Lignite is a form of peat in which the woody structure is less apparent.

Coals.

Bituminous coal is a soft coal containing from 25 to 35 per cent. of volatile matter.

Cannel coal is a variety of bituminous coal in which the volatile matter is present in such a quantity that the coal will burn like a candle when ignited.

Anthracite coal is a hard, compact, highly lustrous coal from which the volatile matters have been driven off by heat and which has been molded into a very hard mass under great pressure.

Graphite is a pure crystalized carbon, and is by some supposed to be of organic origin.

Phosphate Rocks.

One of the most important rocks of animal origin is the phosphatic group. On account of the value of phosphoric acid as a fertilizer this class of rocks, although limited in extent, becomes of the highest value for agricultural purposes. It may exist as phosphatic sandstone, guano, or in the form of nodules called coprolites.

Guano consists mainly of the excrement and remains of sea fowls, and is formed only in those regions which are so dry as to prevent the soluble matters of such deposits from being washed away. The chief deposits of guano which are used for commercial purposes are found on small islands in the Pacific Ocean off the coast of Peru. The deposits of guano on these islands sometimes reach a depth of 80 feet. But guano is found in many caves in this country where it is protected from the action of water, and in many instances is quite as valuable for commercial purposes as the sea island guano before noted.

Coprolites are supposed to be the excrements of vertebrate animals which have been preserved by inclusion in rocks.

The phosphatic sandstones are found over extensive areas in South Carolina and Florida. They are essentially silicious or calcareous sand containing imbedded bones, fossil teeth of sharks and other animal remains.

The above brief description comprises all of the aqueous rocks of both classes which are of any great importance for agricultural purposes. As has been seen, they have been formed from rocks of older origin chiefly by the action of water, and hence the general name which has been applied to them of aqueous rocks.

Æolian Rocks.

There is another class of rocks of very limited importance which has been formed in this same way from the older rocks by the action of the wind, and these are called æolian rocks.

Dr. Merrill says: "This group comprises a small and comparatively insignificant class of rocks formed from materials drifted by the winds and more or less compacted into rock masses. They are, as a rule, of a loose and friable texture and of a fragmental nature."

In the West there are many thousands of acres of land covered with a soil which must be essentially of æolian nature. The stiff winds of this region continually drift the loose particles of earth and clay and deposit them in other localities. While these deposits are scarcely to be called rocks, yet they comprise an important area of the soil for agricultural purposes and are chiefly of a sandy nature. It is not an uncommon thing in many parts of the central western part of our country to have young crops entirely cut off by drifting sand. The power of the atmosphere, therefore, in transporting rock materials from one place to another must not be underrated simply because the æolian group is not of any great prominence from a geological point of view.

Metamorphic Rocks.

We have discussed in the preceeding papers the changes which the original rocks underwent when subjected to the action of water in various forms and of wind. There is another change which the original rocks have undergone which is due to the combined action of heat, pressure, and chemical action, viz., the heat from the interior of the earth and the pressure from overlying masses and chemical action due to the number of causes. Rocks are changed from their original condition by these forces, and this change is expressed by the word metamorphic, which is used as a distinctive term for this class of rocks. In many cases these changes have been so great as to entirely obliterate all traces of the original characters of the rock, or at least so change them that any reasoning, based upon their present condition, as regards their original form would likely be erroneous. In some cases, however, it is possible to trace the changes which have taken place through the dynamic and chemical forces before referred to, and in some masses of material may be seen all forms of progressive change from the unchanged original rock to the completely changed metamorphic substitute.

The Stratified Rocks.

The metamorphic rocks may be divided into certain distinct groups. In the first of these groups are included the stratified or bedded rocks. The crystalline limestones, or dolomites, are types of this class. The essential constituent of the crystalline limestones is the mineral calcite. This mineral crystallizes in beautiful rhombic prisms, and these are sometimes of great size and clearness. They are then known as Iceland spar. These rocks consist chiefly, as far as the limestones are concerned, of carbonate of calcium. The dolomites are a mixture of the carbonates of calcium and magnesium. The limestones are pre-eminently stratified rocks. The purest and finest crystalline varieties often show a granular texture like that of loaf sugar. The color of the limestones varies from pure white through all the various shades of color to almost pure black. The pink and red colors of limestones are due usually to oxide of iron, and the black to carbonaceous matter. There is no other rock which is perhaps so important from the agricultural point of view as these limestones, with the single exception of silicates. It is supposed

that they originally were composed of the debris of mollusks, corals, and other lime-secreting animals, but these remains have been completely obliterated by the metamorphic changes to which they have been subjected. They often contain fossils, however, which are of the greatest interest to the geologist. They are also of the greatest importance from an economic standpoint on account of the immense quantities of building material which they furnish. Some of the limestones contain certain amounts of clay and silica, which give them the property of forming cement.

The Foliated Rocks.

The next great class of metamorphic rocks is known as the foliated or schistose group. That large body of rocks known as gneisses is typical of this form. The gneisses are very nearly related to the granites, and have essentially the same chemical composition. The colors of the gneisses vary like those of the granites through all the shades of gray, green, pink, or red. True gneisses are among the first crystalline rocks, and are regarded by many geologists as representing portions of the primeval crust of the globe. Other authorities regard them as having been changed from original sedimentary deposits resulting from the breaking down of still older rocks. If this be the case, it is probably true that no original rock formed at the first cooling of the earth's surface is now known to the geologist. The decomposition of the gneisses, like that of the granites, affords some of the most valuable plant foods for the soil. Especially is this true of phosphoric acid and potash.

Among the foliated rocks must also be mentioned the slates as of great importance economically. Clay slate, or roofing slate, is really an argillaceous rock which has become changed by the action of metamorphic forces in such a way as to develop its cleavage nature and at the same time obliterate the evidences of the original rocks from which it was formed.

Another very striking illustration of a foliated rock is found in the mica-schists, plates of which are in general use under the name of isinglass. It is remarkable to note into what thin plates mica can be split.

The Volcanic Rocks.

Another important group of rocks includes those which are formed through the agency of fire alone; in other words, the volcanic or eruptive rocks. These rocks would, of course, include all those which have been originally in a state of fusion and are found in their present state just as they were left on cooling from the molten mass. It has already been noted that rock of this kind varies greatly in its structure according to whether it has been cooled suddenly or very slowly. When cooled suddenly it contains no trace of crystalline structure. When cooled slowly, however, the various elements of which such a rock is composed have time to be separated and crystallize out in definite shapes.

The Plutonic Rocks.

Igneous rocks are divided into two classes, according to the method of formation. That class of igneous rocks which, while in a molten condition, was forced up or intruded between the older or overlying rocks, and which never reached the surface, is called intrusive or plutonic. Evidently such rocks were placed in a condition where they were very slowly cooled and are essentially of a crystalline nature. Of this class of rocks the granites are the most important, both from an agricultural and geological point of view. The essential constituents of granite are quartz and a feldspar containing potash. Other minerals also occur very generally, and especially mica or hornblende. The average chemical composition of granite may be given as follows: Silica, 72.07 per cent.; alumina, 14.81 per cent.; potash, 5.11 per cent.; soda, 2.79 per cent.; lime, 1.63 per cent.; magnesia, 1.33 per cent.; iron oxide, 2.22 per cent.

The average specific gravity of granite is about 2.66. Of the crystalline minerals in granite, quartz is supposed to be the one which was last to solidify. The crystals of quartz often contain in their interior liquid masses of carbonic acid or saline matter. The prevailing color of granite is some shade of gray, but green, yellow, and pink granites are not uncommon. The granites are the subject of an especial classification from a geological and mineralogical point of view, but this is of but little interest to the agriculturist. The essential thing is the general composition of granite, and especially the amount of potash it yields on decomposition.

The Effusive Rocks.

The second variety of igneous rocks, as distinguished from that just described, is known as the effusive or volcanic. These had the same origin as the preceding class, but in being forced upward they were forced entirely to the surface and hence cooled rapidly. They therefore do not have that definite crystalline structure and arrangement which characterize the intrusive or plutonic rocks. The porphyries and basalts are the most common types of this kind of rocks. Those portions of effusive rocks which have cooled while on the surface often show not only a glassy nature, but are often also very light owing to the immense number of empty spaces which they contain. It is supposed that these holes were originally filled with aqueous vapor or some other gas. The colors vary as much as those of the other rocks. Shades of gray, green, brown, yellow, pink, and red are common. In some forms of the rock, as obsidian, black is the more common color. The chemical composition of these rocks is much the same for all. The average may be given as follows: Silica, 74.45 per cent.; iron oxide .56 per cent.; lime, .83 per cent.; soda, 3.97 per cent.; phosphoric acid, .01 per cent.; alumina, 14.72 per cent.; manganese, .28 per cent.; magnesia, .37 per cent.; potash, 4.53 per cent. The chemical composition, however, may vary largely from the above, but these figures are sufficient to show the essential relations of these bodies, chemically, to the granites and to show the valuable constituents of plant food which they yield on decomposition, It is unnecessary to enter here into a mineralogical and geological classification of these rocks, as it would be of little interest from an agricultural point of view.

In the foregoing papers an effort has been made briefly to bring before the intelligent farmer a few of the original and secondary rocks forming the earth's crust, from the decomposition of which the soil which he tills has been derived. It is hoped that the description has been divested of all technicality so that it is easily understood by every one, and yet kept sufficiently scientific so that those who study it may not be led into the error of grasping at popular notions which when proved might be found altogether out of harmony with scientific facts. It is evident in this age that the farmer has reached that stage of development when knowledge of this kind is not only welcome to him, but in some respects is essential to his welfare. Next will follow a brief description of the methods and processes by which the decay of rocks has been brought about.

An Australian Race-Track Scene.

What may be termed the "middle class" of the Victoria Racing Club's patrons is found in the half-crown inclosure of the "Hill." This includes a reserve of 17 acres directly above the Grand Stand, from which it is separated by a fence and ditch. A covered stand, accommodating over 8,000 people, crowns the summit of the slope and commands a magnificent view of the course more than 100 feet below; two brass bands play incessantly between the races for the delectation of the "Hill" patrons; bars, tea, and luncheon-rooms and oyster counters dispense refreshments in Swiss chalets. Chinese pagodas, and other picturesque buildings; coatrooms and lavatories for men, and retiring-rooms for women are provided, and hot water for tea-making is ready at all times without charge. The attendance upon the "Hill" is a shade more respectable than that upon the "Flat," and is composed of equally strange elements. Here is the prognosticator of results in the events of the day, selling cards for five shillings each which bear the names of the winners, and driving a roaring trade—he and his customers seeming alike untroubled by the reflection that a man of such prophetic powers could make his fortune before the day was out by keeping his knowledge to his own benefit. Here, too, are the tribe of the "Hill" book-makers, a class peculiar, loud-voiced, sharp in feature, and eye, and clad in the extraordinary habiliments which the artist has described in his illustration. This individual is arrayed in coat and trousers of crimson cretonne, embellished with a floral pattern in yellow, and hat of the same adorned with a white ostrich feather. Among his compeers may be seen a pair in coats and caps of cardinal-red plush; a second couple are gorgeous in swallow-tail coats of cerulean velvet, and tall hats plated with gold-leaf, presenting a slendid appearance in the sun; others are attired in garments of sateen, silk, or calico, in every eccentricity of pattern and cut that a lunatic designer could originate, or a tailor with the delirium tremens construct.—*Scribner.*

Bread in Many Countries.

A French agricultural paper has been discussing lately the various substances used at different times and different countries in bread making. In America (North and South) rice, chestnuts, poppy seed, and earth nuts have all been used, the Indians and other aborigines apparently using any grain that came to hand in good seasons, whilst in times of dearth powdered white stones, pounded birch bark, and sawdust have all been utilized. Dried and powdered fruit, too, such as mulberries and nuts of every kind, have been used at various times down to the present day; in fact, an American company has been lately started to supply bananas and plantains prepared for food, either dried, in pulp, or as meal or flour; and for some time banana flour for puddings and cakes has been, I believe, to be had in London. These materials can, one and all (with the exception of the Indian famine bread described above), be intelligibly called palatable, and at worst, eatable, but the practice mentioned as prevailing in Tartary and the extreme north of Europe of using dried, ground, and pounded fish instead of flour, does not commend itself to one's English ideas. Still, even the worst of these is not to be compared with an awful compound lately brought back from one of the Russian famine districts. This horrible bread (!) is produced from birch and other tree bark, a weed said to be of the most unwholesome kind, and sand, to give the gruesome cake the necessary substance to enable it to cheat the wretched consumer into feeling even a momentary support. This, at best a stodgy, heavy paste of a dingy brown, becomes, when kept, a black stony mass of (apparently) petrified turf, the very idea of which, as food, is nauseating. One frequently reads of, but one seldom sees, the revolting messes by which famine-stricken populations try to deaden the pangs of starvation, and a more potent method of evoking sympathy of a useful kind for the hapless Russian peasants in their terrible distress, than the sight of this bread it would be hard to devise.

Decrease of Game in Colorado.

State Game Warden Lands's annual report shows a great decrease in the amount of large game in the State of Colorado and almost total destruction of mountain trout through violation of the laws, which are too full of loopholes to allow any convictions. Large numbers of the Ute Indians have left their reservations and are exciting much alarm among the settlers in Routt County. Game Warden Taylor and the Sheriff of Rio Delanco County have gone out to try to head them off. If they fail serious trouble may follow. If something is not done to prevent the Utes from slaughtering the deer, which are already scarce, they will be exterminated.

EUROPEAN AGRICULTURE.

The Associated Dairies of France and the Proposed Credit Banks for Agriculture.

Special correspondence THE AMERICAN FARMER.

PARIS, November, 1892.

ASSOCIATED dairies are rapidly extending in the provinces, but in the cities milk is sold more or less "fresh from the cow." To illustrate the extent of the milk industry in Paris, 40 years ago only the milk region of the capital embraced a circuit of 16 miles; at present, thanks to railway facilities, that region has been enlarged to a sweep of 120 miles. The daily consumption of milk in Paris is 77,000 to 95,000 gallons; of this total two-thirds are supplied by train, and the remainder is supplied by the suburbs and the *intramuros* dairies. The latter are becoming gradually extinct, not only from the pressing demands for building sites, but also from the severity of the veterinary inspection, which examines each milch cow before being allowed to be tied up in a metropolitan dairy, and next the periodical examination to ascertain that the cows show no signs of tuberculosis. About 95 per cent. of all the milk forwarded to Paris every day is sold, the portion unsold is converted in soft cheese, fresh or demi-salted, or made into butter. There are special establishments in the city that buy up the unsold milk. It may appear strange, but there is a less sale by 20 per cent. of milk during the Summer months. This is due to a preference being extended to fruits, and a prejudice generally extant that the milk is doctored. Excepting watering—and that is bad enough—there is no other form of adulteration practiced; but this is done unblushingly, because it passes through several hands before arriving at the consumer, and next, there is no infallible test for measuring the water added. If the prosecution of a dairyman be ordered by the Municipal Laboratory the milk syndicate is so wealthy that it would employ the whole bar to defend the accused, and cite a score of chemists and opticians to show neither the analysis nor the most delicate lactometers can indicate where the poor milk ceases and where fraud commences.

The wholesale purchasers of milk in the dairy region pay the cow owners three cents the litre (1¾ pint). The railway companies charge one centime, or the fifth part of a cent, per litre per radius of 30 miles or part of that circuit. The wholesale dealer heats and cools the milk as he thinks best—"Pasteurizes" it like the treatment of wine and vinegar, to enable it to keep and to escape the churning action of transport. The addition of an alkaline salt is prohibited. He sells it at the rate of eight to nine sous the litre to the retail dealer, who in return charges the customer 12 to 15 sous. This represents a difference of 400 per cent. over the price paid the farmer, and which establishes once more the necessity of farmers co-operating to retail their products or arranging to have a share in the 400 per cent. profits. In some parts of the city the same milk can be had two cents cheaper than in others, while again there are purchasers willing to pay 20 cents the litre if the milk be above suspicion. Every dairyman claims to own some farm of his own in the neighboring departments round Paris, and boasts to there keep his cow shed. On one occasion I followed up the whereabouts of such a farm, and, as informed, railed 20 miles to see its modern fittings up. I could not find the establishment, but did so on my return to Paris. It was within a stone's throw of my residence. The "farm" was a grass plat a few square yards in extent, and adjoining was the byre, with the veterinary inspectors ordering the diseased cows to be slaughtered. To escape the heavy penalty the owner committed suicide.

It is only in 1886 that France commenced establishing co-operative butteries, where all the milk of a region, from 2,000 gallons a day at least, is concentrated and at once converted into butter on the Danish system. Denmark has 200 butteries or factories. These co-operative dairies are chiefly confined to the north of France, because more populous, and hence the butter meets with an immediate market; and last, not least, the skimmed milk when converted into cheese obtains a ready sale. Many dairies prefer fattening hogs on the milk. A co-operative dairy is generally started with a capital of $10,000; the shareholders must be all milk farmers in the region; five per cent. interest is written off for the capital, and the remaining profits are divided pro rata to the quantities of milk supplied. To obtain a good market for the butter is the chief aim; happily France is able to consume the four-fifths of all the butter she produces. Consumers are preferring butter to meat as they do milk to watered and chemicalized wine. France has lost the foreign market for butter, having been cut out in England by Denmark, Holland, Germany, and Ireland. She does not export at present more than $3,000,000 annually; the dimunition is the result of adulteration with margarine and old-fashioned methods of preparation that remove the appetizing qualities of the butter. The United States supply the French market now with margarine, which is called "American butter." The sale was tried to be ruined by circulating the rumor it was full of microbes—about as true as American pork being trichinosised.

The discovery of Prof. Chemist-Ramaun, of Eberswold, in northern Germany, promises to "catch on." He has shown by analysis that in Autumn, when the buds for the following Spring's leaves have been formed, the tips of the branches or twigs not thicker than one-quarter or one-half inch contain, as in the case of the beech and the birch, nutritive substances, as good as average hay, and consequently superior to the best straw. These substances comprise pecula, sugar, starch, and nitrogenous compounds. The woody fiber is as digestible as is that in hay. The buds, like the seeds of plants, contain the infant supply of delicate food for start-growth. M. Romaun bruises the twigs in a crusher, mixes the mass with one per cent. of malt, adds hot water, and allows the compound to ferment into a jelly; this jelly is mixed with chopped roots, hay, etc., and is eaten readily and profitably by horses, cattle, and sheep, in addition to securing a substantial economy in feeding stuffs. About 20 cents is the cost of 100 weight of the prepared mixture. Some large farmers in Germany have tried the new food and are satisfied it will succeed.

The French Government is seriously taking in hand the plan of credit banks for agriculture, and that Germany and Italy have long ago shown to be safe and salutary. The Minister of Agriculture intends by his bill to view each farmers' syndicate as a local bank, connecting with a central bank that will be countenanced by the State. The members of the syndicate will be able to purchase manures, implements, seeds, feed, etc., at first hand, and for cash. The syndicate will be responsible for its total purchases, and will itself select the sound borrowers and the credit to be allowed them by bills drawn at long dates—nine to 12 months, at the lowest bank interest. To cover expected risks and to maintain the Central Bank, a growing concern, the Government will prop it up with a few million dollars annually. The project is only to be viewed as an experiment. The bills given as security will not be put in circulation.

For France there is an intimate relation between alcohol and potatoes. She consumes annually 37,000,000 gallons of brandy, therein comprised what is demanded by her industries. A large portion of her alcohol is imported from Germany, and which is made by distilling the tubers. France has extensively grown potatoes this year for the distillery, and much interest is felt in the result. In Germany 16 to 20 tons of potatoes are claimed as being lifted per acre. The discussion not unnaturally turns on methods of culture. The soil must be suitable; that is, not wet nor cold. It must be rich in plant food; experiments attest that the tuber is a voracious nitrogen feeder, preferring it to phosphoric acid and potash, and that it is best to apply only that fertilizer of which the plant has need, and not supply a manure with food elements it does not utilize. The next point is, what size seed tuber is best to employ—large, medium, or small? Vassler's old plan is rather favorably revived, that of planting two, or even three, small whole tubers to a single one either medium or large sized. Opinion insists upon the disputed point being more generally tested.

The thrashing of wheat proceeds actively, and millers are pleased with the samples already sent to market; the flour is prime and the yield excellent. As to the vintage, quality rather than quantity was anticipated, and such has been realized. Attention is being drawn to the American variety of grape, the "Portuguese." It is found to suit admirably thinnish soils and elevated districts. The American cuttings seem destined to replant the destroyed vineyards of France. It is very singular that no experiments of any importance have been tried with cuttings from European vines.

The Court of Appeals has at last settled a long disputed question, viz., that the purchaser of an ox affected with tuberculosis is not bound to the bargain; it is the vender who commits a misdemeanor by selling diseased stock. The minor court can fine him for doing so, and even when the animal has been ordered to be killed, can withhold the idemnity.—PAUL GREVY.

Census Bulletin of Farms, Houses, and Mortgages in the District of Columbia.

The following census bulletin giving the leading results of the investigations of farm and house proprietorship in the District of Columbia will be found of interest:

There are in the District of Columbia 43,580 home families, and only .88 of 1 per cent. of farm families. Of the total number of families owning or hiring their homes, 32,597, or 74.80 per cent. live in hired houses, while 10,983, or 25.20 per cent. own their homes. In regard to farms, the conclusion is that 37.47 per cent. of the farm families hire, and 62.53 per cent. own the farms cultivated by them; that 4.13 per cent. of the farm-owning families own subject to incumbrance, and 95.87 per cent. own free of incumbrance. Among 100 farm families, 37 hire their farms, three own with incumbrance, and 60 without incumbrance. On the owned farms of the District there are liens amounting to $17,300, which is 32.78 per cent. of their value, and this debt bears interest at the average rate of 6 per cent., making the average annual intersst charge $104 to each family. Each owned and incumbered farm, on the average, is worth $5,278, and is subject to a debt of $1,730.

The corresponding facts for homes are that 74.80 per cent. of the home families hire and 25.20 per cent. own their homes; that of the home-owning families 75.99 per cent. own free of incumbrance and 24.01 per cent. with incumbrance. In 100 home families, on the average, 75 hire their homes, six own with incumbrance, and 19 without incumbrance. The debt on owned homes aggregates $6,430,374, or 34.57 per cent. of their value, and bears interest at the average rate of 50.99 per cent., so that the annual amount of interest to each home averages $146. An average debt of $2.439 incumbers each home, which has the average value of $7,054.

The 10 farm mortgages found in this District were all made for the purpose of buying or improving real estate, and 84.04 per cent. of the home families incurred 85.43 per cent. of the total home debt for the same purpose.

FARMER'S MEETING.

The Gunpowder and Deer Creek Clubs Discuss Some Interesting Topics.

SINCE the last report of the Gunpowder Club a meeting was held in October at Abram C. Scott's, whose fertile and well-tilled farm, with its thrifty fields of carefully-seeded wheat and barley, its promising sets of clover, and barns and barracks bursting with hay and grain, bore testimony to the good management and skill of the host and his son, on whom the burden of operations mainly falls. The usual tour of inspection showed fields and buildings in good condition, live stock of all kinds thriving, including a flock of sheep being rapidly brought up from rather low condition to a good state of thrift.

The half hour for questions being opened, it was asked whether corn would keep if gotten in now. Reply was made that too much care could not be used; that a free circulation of air is required, not only over the top, but from the bottom and sides of the cornhouse, and that great bulks of the grain should be avoided. It was stated that the Carroll corn, a local flint variety which is largely planted, hardens early and can be stored earlier than other sorts, but the corn with large cobs does not dry out readily.

Someone asking whether the hight of the cornhouse from the ground affected the keeping of the corn, answer was made that the high cribs formerly in use always kept corn well, but several cases were instanced where houses built so as to be only a foot or two from the ground kept the grain well also, the kind of weather when it is stored most affecting its keeping qualities.

Samuel M. Price reported the loss by cholera of all his hogs but four, and inquired if other members had suffered from same disease. His had not been confined in pens, but had been running in the woods. They fell away in flesh, lost their appetite, and after considerable purging, dwindled away and died. They had no cough; he had given one arsenic in milk, and it recovered, but others would not take milk; had difficulty in drenching hogs—an experience common to most of the members. L. M. Bacon said he had 25 head of hogs in good health, and many of his neighbors had large stocks. He said hyposulphite of soda had been recommended for cholera. It is put in the slop. Frank G. Scott had used parched corn and found it a preventive if not a cure. Others spoke well of blacksmith's (bituminous) coal and charcoal. One member had found a prophylactic in chamber lye, a portion of which was added daily to the slops given the hogs.

How have potatoes turned out? E. G. Merryman asked. Mr. Bacon's were very poor; Mr. Ensor's were the best he ever had. The latter had planted early in April on land that had been manured and plowed in the Fall, and replowed in Spring, and he found that a mixture of henhouse manure and plaster in the drills produced better crops than high-priced special potato fertilizers. He got 185 bushels from less than an acre. A. C. Scott has found it best to manure his potatoes after they are planted and worked, the manure acting as a mulch and conserving the moisture in the soil; the potato likes a cool, moist soil.

In this club the manure question is always taken up at the October meeting of each year, and every member is expected to give his latest experience, his methods of application, and to make any suggestions which may be appropriate or useful.

L. M. Bacon had nothing new to communicate. Tries to make all he can. The last two years he had covered his wheat ground and got one year 28 bushels to the acre and a good set of grass. Applied on the surface. Last year used the same way he got only seven bushels of wheat, but a fine crop of grass. He advocates getting manure out on the land as soon as possible from the stable. Believes it best to put on sod. There is a great loss in leaving in the barnyard to leach. The more manure we can make on our farms the better; the mulch or protection afforded our soil is one of the things we want. Good sets of grass will, in time, improve the land.

John Bond hauls out the manure in Spring for corn. If he plows in the Fall, top-dresses in Spring. Coarse manure is piled up till Spring, and horse manure made after that is mixed with the coarse manure. He finds if manure is plowed under for wheat that good sets of grass follow. Went over this year about 18 or 20 acres.

Nelson R. Miles has tried several plans. Mr. Bacon's plan of putting out during Winter on the grain he found acted well for grain and grass both. Plowed under for corn, and with good results. Of wheat, heavily manured last year, he got 21 bushels grain and heavy grass. Could now cut a good crop of aftermath. (S. M. Price suggested that if he couldn't pasture it he certainly should mow it. He had kept his sheep all Winter on such growth.) A discussion sprang up here as to the great abundance this season of ragweed. It was the general experience that there was more of it than for many years. Mr. Bacon said he could not feed aftermath to dairy cows on account of the ragweed in it.

Abram C. Scott would rather put manure out as fast as made. No other plan allows so much ground to be gone over, and you get a good corn crop. Where it is left over for wheat, put on after the sod is plowed. Sometimes he spreads straw on the land; once put it on four or five inches thick on a poor piece of land and it has produced well ever since.

E. G. Merryman has tried five several ways of applying manure in 12 months. Last August put on for wheat on plowed ground and harrowed in. Got a splendid crop of wheat, but the grass was not so good. Tried likewise Mr. Bacon's plan of hauling out manure on wheat in Winter, but an objection to this is the rank growth of weeds, and the clover is not so good. He has hauled again during the Winter on to a pasture field with advantage. Also hauled in Winter on to plowed ground, and on another place hauled out and plowed down. Prefers the last plan, as the ground does not pack. Corn never does so well when the ground has been hauled over. During all this past Summer the corn has been better where manure was plowed under, and generally he can get no better results from manure than by putting on the ground in Fall and plowing in.

Samuel M. Price puts out manure as fast as he can from the stable, and likes to follow Mr. Bacon's plan of putting on the grain fields in Winter, and on sod for corn, manuring a year ahead, if possible. Puts out all he possibly can before corn-planting, and the remainder left in the barnyard is piled and got ready for wheat ground after plowing. This year he hauled out and plowed under. His great object is to make as much as possible and to get it out as early as he can. Our dairy farmers make a mistake in putting too much corn ground in wheat. He thinks they should sow peas an l Hungarian grass and use as pastures. He sowed them this year in an apple orchard, and had two cartloads cut each day, one in the morning and one at night, finding a great difference in the milk, it being richer than when the cows were on grass. Would sow peas as soon as possible after corn-planting, and recommends a bushel to the acre, and a half peck of Hungarian grass mixed with them. Pasturing off does just as much good as plowing under. Black field peas are the best variety; they should be harrowed in, and the Hungarian sowed on top and rolled.

Daniel Pearce (delegate from the Junior club) follows Mr. Price's plan, and hauls on sod ground for corn. Makes all manure he can and applies as early after it is made as possible. If possible, he would manure a year ahead.

Edwin Scott's aim is to get it on quickly; it tells when you plow it down for corn. Always prefers ground plowed in Fall; and for wheat top-dresses and harrows in. For grass sets applies as soon as the grain is cut. Piled-up manure does not lose in strength, but it may in bulk. Applies plaster when manure is piled in the field. Sowed two and a quarter acres of rye for early pasture for sheep, and in the following Spring pastured on it 60 sheep and 50 lambs for six weeks, then let it grow up and got 10 bushels of rye to the acre, besides the straw, and there was a good set of grass besides. In the rye there was no cockle and no garlic.

Frank G. Scott is a great advocate of manure, makes and saves all he can, and saves it by spreading right out on the field. Does not believe in piling in field or yard; that is labor thrown away. Spreads on grass direct from the stable, if possible; the mulch which it affords is a great benefit. Hauled straw out early in season on part of a field intended for corn the next year, and where straw was not put applied good manure. All the land was plowed alike, and the corn was better from the ground on which the straw was put than from that having the manure. Likes manuring a year ahead for corn, and puts on the sod.

W. W. C. Stewart (Secretary of the club) confines his operations to gardening, and applies manure as a mulch for beans, potatoes, etc. Has had fine crops this year, notwithstanding the drouth.

George Scott (a visitor from Harford County) said when sod is manured for corn good crops may reasonably be expected, and the pasture lands in Harford are luxuriant where manure has been applied in that way. All manure should be kept under cover, otherwise there is great loss from leaching and heating. Poor land in his County has been made rich by the use of fine ground bone. The late Wm. Woolsey, whose success was conspicuous, said he could afford to use 600 pounds of bone to the acre, but that a poor man could not afford to use less than 1,000 pounds. Our farmers there, after using superphosphates largely, are going back to ground bones.

Col. John Weaver (a visitor from Kansas) said the use of manure does not prevail in southeastern Kansas; they have no need for it, and without it grow good crops of corn and wheat for years. This year yields of 42 bushels of wheat to the acre were not uncommon in the State.

J. B. Ensor (Foreman of the day) said the sooner manure is got out the better. If we could use a fertilizer that would produce grass we could then put our manures on the sod. Always saves his manure to get sets.

Benjamin Brooks (a visitor) told how he had tried putting manure on top of wheat during Winter, and the wheat was not so good as where no manure was applied, though the grass was better.

The Deer Creek Club held its October meeting at Robert F. Hanna's residence, with a large attendance of members and visitors. The customary inspection of the farm, buildings, and stock, according to the report of the committee appointed, showed every department in good order, the corn crop promising the handsome yield of 16 barrels (80 bushels) to the acre, hogs fat enough to butcher, the herd of well-bred cows carefully kept and in best of condition, dwelling, grounds, and stables, all showing carefulness and neatness.

The subject of the evening's dissussion was "Roads, Bridges, and Taxes," Mr. Hanna opening, as is the custom with with this body. He likes good roads, but thought too much turnpiking would bankrupt the County; that treatment should be restricted to the worst places. Bridges, too, should be built only where needed absolutely. County expenses should be cut down, the pay of jurors and judges and some County officials being too high, and many other opportunities existing for reducing expenditures.

Edward P. Moores favored "piking" main thoroughfares, but not too heavily. On dirt roads the stones should be removed, and not too much loose dirt thrown up. Box drains are unsatisfactory, properly stored "digouts" being preferable.

J. W. Hanna thought all loose stones should be thrown out of the roads and bridges built over all dangerous streams, but not where they are not needed, as is sometimes done. Taxes are certainly too high, but he could not devise any effective plan for reducing them.

William B. Hopkins said Harford County roads have improved greatly, and did not object to taxes for good roads, though each district should have its own road taxes. Too many bridges are built, the Commissioners being unable to say "no" apparently to appeals for new bridges and roads. Opposed reducing judges' salaries and jurors' per diem; both earn all they receive.

Jas. F. Kenly favored permanent improvements on roads as truer economy than patching them; but our turnpiked roads cost too much because we do not know how to make them and do the work at the wrong season. Loose stones and those projecting above the road-bed should be removed.

John B. Wysong said no taxpayer objects to good roads, but many object to the way and the time of year in which they are mended, and to the incompetent supervisors charged with the work. As to taxes, they are outrageous; the public business is carried on in a haphazard, unsystematic way, which would wreck any private enterprise. All public work should be done on a cash basis.

F. E. Swartz: Method and time of mending the roads both wrong. Turnpikes are needed, but they are made too expensive by too much stone being put on them. Dirt roads should have but little dirt thrown on them. Taxes are too high, but they seem beyond our power of control.

John Moores: Our roads are a sinking fund, and that is why we have such high taxes. There are too many supervisors, and to pay them takes one-third of the road money, although they do very little work. They are even paid a per diem for coming to the County seat to prove their accounts. Crossroads should not be turnpiked; only the main thoroughfares. Efficient supervisors should be given all the roads they will take. Narrow-wheeled wagons should be taxed out of use. Roads are mended too late in the season. Building iron bridges should be stopped. Covered bridges built of our own white oak by our own mechanics are better in every way and will last longer. County expenses could be reduced one-third if our public affairs were managed properly.

E. B. Whistler said our County Commissioners should conduct the business of their office in a business-like way. When crops are down in price expenses should be reduced and taxes lowered to correspond, and the coat cut according to the cloth. If turnpiking roads is not done properly it should not be done at all; if done on correct principles the stone will go twice as far.

Wm. D. Lee favored good roads even at the cost of high taxes, and the County should have heavy rollers for making turnpikes as well as for use on dirt roads.

Thos. Lochary did not think turnpiking always makes a good road. A good dirt road is good for eight or nine months in the year, and a badly-constructed turnpike is never good. Only such roads as are in constant use should be piked. A stop should be put to farmers letting bushes and weeds fall in the gutter and telegraphmen throwing limbs of trees in them.

R. Harris Archer said our roads are 100 per cent. better than they were 25 years ago, and would be better still if taxpayers would encourage the County Commissioners somewhat—not by money, but by simply doing their duty as good citizens. If there is a loose stone on the road, throw it out; if a hole in a plank of a bridge nearby, get a piece and patch it; this is better than grumbling and doing nothing ourselves.

D. C. W. Smith, the President of the club, said good roads are the foundation of comfort, happiness, and prosperity in every neighborhood. The local road league accomplishes much good. It mends 15 miles and gets $500 from the County, supplying itself the balance. Some of the roads have been turnpiked for long distances. Salaries should be cut down when practicable; the league officers get no salaries. He had found allies in the school boys in getting rid of loose stones on the roads. Having explained to them the danger of these stones they promised to throw them out wherever they went, and their efforts have accomplished much good. Economy in the County Commissioner's office should be exercised just as much as by a prudent merchant or good farmer. Our County is unsurpassed in its advantages, and only needs good roads to be a paradise.

A committee was appointed to prepare suitable resolutions and submit them at the next meeting for a conference with the County Commissioners looking to the adoption of a plan for reducing County expenses, so that value received may be had for money expended.

Some Curious Trees.

A thread and needle tree is a step beyond the wax tree in the way of convenience. It sounds like a fable, but the Mexican maguey tree furnishes not only a needle and thread all ready for use, but many other conveniences. Just outside the door of a Mexican home the beautiful tree stands, loaded with "clustering pyramids of flowers towering above dark coronals of leaves," and at the tip of each dark green leaf is a slender thorn needle that must be drawn carefully from its sheath, at the same time slowly unwinding the thread, a strong smooth fiber attached to the needle and capable of being drawn out to a great length.

Among its other uses, "the roots of this tree, well prepared, are a most savory dish, while with its leaves may be made a thatching fit for a queen; and no prettier sight can be met than the cottages of Mexican peasants so exquisitely crowned. The rich leaves also afford a material for paper, and from the juices is distilled a favorite beverage. From the heavier fibers the natives manufacture strong cords and coarse string cloth."

The pottery tree, found in Brazil, is equally curious and useful. One would scarcely expect to find pots and jars and pitchers growing in if not on a tree, but the material for them certainly grows in this tree. It is found in the form of silica, chiefly in the bark, although the very hard wood of the tree also yields it. To make this curious pottery the bark is burned, and what remains is ground to powder and mixed with clay.

The human trees of India, although not really trees at all, are at least interesting as a very clever manuver. The Bheel robbers lurk in lonely places near the mountains and jungles, and are very swift and cunning in eluding capture. They are perfect pests in India, and a band of them will often be pursued by mounted Englishmen. Their first attempt is to reach the jungle, the beginning of which has perhaps been cleared by fire, but there is no time to seek its sheltering depths, for their pursuers are close at hand.

Fortunately for the robbers, some wrecks of small burned trees are also at hand, and taking off what little clothing they wear, they scatter it around with their stolen goods over the open space, and cover the low piles with their round shields so that they look like low mounds of earth. Then they pick up some blackened tree branches, and get into very uncomfortable attitudes to resemble twisted trunks, keeping perfectly quiet, and greatly enjoying the surprise of their pursuers at their mysterious disappearance. When the coast is clear again they untwist themselves, gather up their possessions, and make off as fast as possible.

It is said that once, before the English had become used to these manuvers, an officer with a party of horses was chasing a small body of Bheel robbers, and was fast overtaking them. Suddenly the robbers ran behind a rock, or some such obstacle, which hid them for a moment, and when the soldiers came up the men had mysteriously disappeard. After an unavailing search, the officer ordered his men to dismount beside a clump of scorched and withered trees, and the day being very hot, he took off his helmet and hung it on a branch by which he was standing.

The branch in question turned out to be the leg of a Bheel, who burst into a scream of laughter, and flung the astonished officer to the ground. The clump of scorched trees suddenly became transformed into men; and the whole party dispersed in different directions before the Englishmen could recover from their surprise, carrying with them the officer's helmet by way of trophy.—*Harper's Young People.*

The Judas Tree.

A species of the Judas tree grows in the south of Europe, and popular tradition has called it Judas tree, from a traditiou that it was the tree upon which Judas hung himself after having betrayed the Savior. It is said the flowers were white before, but, as if the tree itself was shocked at the enormity of the offense of Judas, its flowers forever afterward became red as blood. The European species is called *Cercis siliquastrum.* In America there is also a species of Judas tree, which is *Cercis canadensis.* It makes a considerable sized tree, although usually seen more as a bush or shrub. It very much resembles the Judas tree of Europe, but the flowers are paler, and there are, of course, some other botanical differences.

From Japan we have now another species, or rather it has been in cultivation for the past 20 years more or less. It is as yet not so well known as it deserves to be, according to *Meehan's Monthly,* which says that it is more dwarf than the forms of Europe and America, and has much larger, thicker, and more shining foliage. The two species described seem to be a mass of flowers in early Spring, and on this account one has been called in America "red bud tree;" but their beauty does not compare with that of this Japanese species. Flowering in early Spring, the leaves push out after the flowers have failed.

A Vegetable Pepsin.

The useful properties of the papaw plant have long been known to the various natives, and have been taken advantage of by them, as can be seen by reference to the works of travelers who can themselves vouch for the accuracy of the accounts they narrate. Thus Drury, in "The Useful Plants of India," states that old hogs and poultry which are fed upon the leaves and fruit, however tough the meat they afford might otherwise be, are thus rendered perfectly tender and good, if eaten as soon as killed. Browne, too, in his "Natural History of Jamaica," says that meat becomes tender after being washed with water to which the juice of the papaw tree has been added; and if left in such water 10 minutes, it will fall from the spit while roasting, or separate into shreds while boiling.

In his "History of Barbadoes," Griffith Hughes mentions that the juice of the papaw tree is of so penetrating a nature that, if the unripe-peeled fruit be boiled with the toughest old salted meat, it quickly makes it soft and tender. Kersten also tells us that boilng meat with the juice of the papaw is quite a common thing in Quito. Capt. S. P. Oliver, writing in *Nature,* July 10, 1879, says: "In Mauritius, where we lived principally on ration beef cut from the tough flesh of the Malagasy oxen, we were in the habit of hanging the ration under the leaves themselves; and if we were in a hurry for a very tender piece of fillet, our cook would wrap up the undercut of the sirloin in the leaves, when the newly-killed meat would be as tender as if it had been hung for a considerable time."—*Chambers's Journal.*

A PLEA FOR GOOD ROADS.

A Movement Being Made for the Improvement of the Roads in Rhode Island.

WE HAVE received a circular from two representatives of the League of American Wheelmen of Rhode Island, calling attention to the work of the present State Highway Commission, and asking individuals exert their influence to secure good roads.

The article is interesting to all who believe in better roads, and we here give good extracts from it:

No manufactory can succeed with every workman running each small point of the business "on his own hook," without any regard for his fellows; neither can road-repairing when each surveyor works or not just as he pleases, and often not in the best way. If his efforts were properly directed by a single responsible town official who knew scientifically how to build and repair good, hard, well-drained, water-tight roads, with grades not exceeding one foot rise in 30 as a rule, surveyors of highways as subordinates would become valuable employes, and the tax-payers' money would not be wasted, and the farce of "working out" road taxes would cease to exist. If any man wished to work and his employment was needed, he would give good work or else not work at all. These results would best be obtained by amending our statute law so that all towns should have a competent single Commissioner of Highways, just as do the four cities, and this official best elected for a term of several years.

Narrow tires on heavy teams are now a great source of expense, since they cut up the roads so fast. Wide tires would roll the roads down, especially if one axle were by law made shorter than the other; on rutted roads the ruts would soon become wider and shallower, and doubtless easier to travel; on soft ground the wheels would not sink in so far, and on hard roads would run as easily. The investigations of the proper width have favored at least a minimum width of four inches for all heavy vehicles, "to be increased when the capacity of the vehicle exceeds half a net ton per wheel, at the rate of one inch for each 400 pounds in excess." It would work no hardship if such a tire law applied to all new vehicles (excepting, of course, on railroads) as constructed from time to time, and perhaps after a limit of a few years to all heavy vehicles whatever in use on the highways. There might be a demand for the (registered) exemption of all existing farm wagons owned in Rhode Island. Of course this law could only apply to vehicles in use on the public highways and not on private farms.

Steam road rollers and stone-crushers are tools that are cheap for use and accomplish large amounts of the best work. Vitrified brick and sheet asphalt are studies for city pavements where granite block is not required, but something harder than macadam is needed.

The public administration of roads abroad is wonderfully successful and economical on these principles and one other still more commanding—that the central or subsidiary powers in the State larger than the smallest political division of town or city shall secure the constant perfection of the great main roads of travel. In the United States, New Jersey has adopted a Country Roads Act which attains this result, and other States are studying the question and will doubtless in time, one after another, adopt the principle. Rhode Island is about the size of two average Counties, and hence would, as a State rather than by Counties, contribute to any main roads.

Of course, the State might pay, without any control, a portion of the expense of the main traveled roads in pursuance of the policy outlined of equalizing the expense of such roads more equitably than the present method of placing all the burden and control on each separate town and city; if the proportions of city to town in accumulations of wealth are now in favor of the cities, it simply shows that the country has been backward from unequal opportunities and that the projected relief sought should be obtained. Nor is the principle of division in any way affected because the city of Providence is fortunate enough to possess upwards of three-fifths of the taxable value of the State or that the highways of the four cities are generally in good condition. If good main roads commonly existed the example would incite a better condition also of the by-roads through the efforts of the strictly local authorities, the depreciated value of country property would appreciate and increase to proper proportions to its relative population and to city values, and the direct saving to cities in cheaper prices for products consumed and decreased cost in cartage of goods furnished to surrounding country districts would more than sweep away in actual money, outside of comfort and saving of time, any expense upon all cities on account of their share of the State tax increased to a trifling extent by the State's part of the bonded cost of such main roads. To insure continual care of such main roads, the State authorities should either build and repair these themselves—the better method—or else have power to cause the towns to build and repair, the expense to be properly divided. What is a proper division could be enacted by the General Assembly or left to a Commission. The New Jersey Country Roads Act assesses three-fourths on the County, and one-fourth on the town or city. Whatever proportion may be settled upon, the general present highway betterment law should prevent the fabrication of any fancy damages, this law allowing towns to charge to adjoining estates not exceeding three-fourths of the expense of any private land actually taken for an adjoining highway, whether any land on an estate charged be actually taken or not, provided such estate really receives such increased improvement and valuation by reason of the taking of such land.

Ex-Gov. Ladd's recent views upon a system of State roads are very valuable. He says: "State roads, or at least County roads, would seem to offer a solution of the difficulty. A glance at the map of Rhode Island will show a splendid system of straight thoroughfare turnpikes that were laid in the stage-coach days. Most of the older States have such a system, neglected, however, since the railroads came in. Put in repair and properly branched, these large arteries would drain most of the country to which I have referred and benefit as well the State as a whole. In their original objects and in all their engineering features these roads are distinctly State roads. And I think it would be profitable for the State to redeem them or to establish a similar comprehensive system."

Rhode Island farmers (on their farms of three acres or over) use, according to the 1890 United States Census, 9,864 horses (not mentioning 51 other equine animals). Estimating that good roads in our State would save only a quarter of this laboring force—and this estimate, which annually saves in Great Britain $100,000,000, is extremely conservative and below what would actually prove the result—this economy would save our farmers in money a little over $300,000 a year simply in the items of horse feed and care of horses and harnesses; this single saving for those whose occupations are agricultural amounts to $24 each annually. When we add to this heavy loss others—such as loss of interest upon unnecessary capital now required, the heavy wear and tear upon wagons and carriages on account of poor roads, the loss of time, the depreciation of farm values and especially the losses to both consumer and producer, alike in the products of agriculture and manufactures—a half a million dollars a year will hardly cover the annual loss and waste of bad roads to the people of Rhode Island, and this loss constitutes an annual tax of nearly $2 upon every inhabitant of the State. If saved, in two or three years it would pay for putting all the main roads of Rhode Island in first-class condition.

This last national census also shows that two-thirds of Rhode Island's population reside in the four cities, and their percentage of increase has averaged 31¼ per cent., while that of the towns has averaged only 24¼ per cent. What better could show that the two-thirds of the people in the cities should contribute a proportionate amount of the expense of all supporting and connecting main roads, and that this expense cannot properly fall entirely upon the town. Roads and streets—both in towns and cities—that are only in local use, will, of course, continue to be paid for and be cared for by the respective local authorities.

This division of expense for main roads among State and town (and perhaps partly abutters) is by all odds the fairest to every interest; the universal adoption of the principle by all the countries in the world with the best existing highways precludes any doubt of its equity or feasibility. A State Commissioner—just as of railroads, for example—would best perfect our highways and diffuse correct information of bridge building and of road construction and repairs. If desired a temporary commission or committee composed of one member from each town and city—or the General Assembly itself—could determine at the present time what constituted such main roads as should come under State construction. The adoption of uniform specifications would be of great value in roads of the same character.

Railroads abroad have not displaced good highways, which cost more and accommodate as large a population in proportion there as here. Any forced use of railroads is an unjustifiable tax on the people. In Rhode Island poor roads prevent cartage beyond comparatively short distances, except at a loss; in Belgium, for example, loads go profitably in competition 60 or 70 miles because they have good roads, and poor highways do not swallow all the profit. Certainly, Rhode Island should equal Belgium in a necessary function of government, and it assuredly is a disgrace that our roads are in some places so poor in Winter that many children are prevented from attending school.

An inspection of some of the Rhode Island roads has been made this past Summer by the State Commission. In considering their report in the future, it must be carefully remembered that this inspection was made in the better season of the year, and the necessity for relief is much more urgent when the Spring and Fall rains and the Winter's storms make a carnival of hubbles and mud, sometimes even in village streets up to the hubs of the wheels.

A demand has sometimes been presented for the employment of our convict labor on road building, as a new or extended employment that does not compete with existing honest labor in regular industries, but which is directed to the construction of public works. "Short term" convicts, as distinguished from more dangerous prisoners for the gravest crimes, could safely be used in making roads.

There are many publications of great value, besides current articles in magazines and papers. For example: "Road Legislation for the American State," American Economic Association Series (May, 1889), Vol. IV., No. 3, obtainable of Prof. Richard T. Ely, Johns Hopkins University, Baltimore, Md.; "Good Roads," a monthly magazine published by the League Roads Improvement Bureau, Potter Building, New York City; "Streets and Highways in Foreign Countries," a special consular report, 1891 (592 pages) to be obtained free upon application to the Secretary of State, Washington, D. C.; "Pavements and Roads," a complete volume published by the Engineering and Building Record (book department), 277 Pearl St., New York City; the interesting volume, "A Move for Better Roads," published through the Philadelphia Committee on Better Roads and the University of Pennsylvania, and for sale by Henry Carey Baird & Co., 810 Walnut St., Philadelphia, and "A Treatise on Highway Construction," by Austin T. Byrne, C. E. (723 pages), published by John Wiley & Sons, 53 East Tenth St., New York City.

HIS GUARDIAN ANGEL.

"Whosoever Sheddeth Man's Blood, by Man Shall His Blood be Shed."

AT 6 o'clock on the morning of July 6, 1851, old Martin, the janitor, emerged from the basement of the seminary and plodded along the path to the belfry. There he grasped the rope with the swing of a quarter century's habit, and the bell responded with the same peal which had aroused sleepy theological students every morning during that period. Then he locked the door against some academic mischief maker and plodded in return. But less steadfastly, for, duty done, old Martin lingered to gaze on the scene which always revived in his heart the rejoicings of the Psalmist.

Most fair indeed was the prospect as he looked beyond the park's inclosure, begirt with chestnuts, down the gentle declivity, with its white road separating the squat colonial homes, past the churches and the academy, to rest on the green fields through which the brook meandered like a sportive ray of light, and which the hills, dark with woody shadows, gratefully bordered. Most fair, because so peaceful, so passionless!

There was a dewy breeze stirring which tossed the old man's white locks and then swept over the boundary wall, whirring the leaves of ivy. A shiver of white glimmered among them and caught his curiosity by its strangeness. He crossed the green. He leaned over and peered. He started back aghast and trembling; then, despite the clog of fear and amazement, he tottered to the belfry. For a moment there was the rural quietude which would have been silenced save for the twitter of birds and the faint lowing of kine from the fields. In another there was clangor, harsh, uneven, discordant clangor, which was vibrant with terror, which said not "Awake," but clashed the mandate, "Shrink from sleep! Hasten, for evil summons you!"

Out from the seminary and the adjacent commons of the academy there was quick response. Aged professors, staid tutors, sober students, and rosy-cheeked boys gathered around the janitor, and with a confusion that was single in purpose, demanded the cause of the alarm.

Old Martin had sunk on the stool by the rope. His jaw had fallen; his eyes uprolled under heavy lids. He pointed, and away rushed the throng to the wall. There was a surge backward as abrupt as the advance had been rapid. There were waving arms and scared faces. There was a roar of horror and a cry for vengeance. For there, beneath the ivy, which mercifully half shrouded her, lay the dead body of a girl, with her white garments decently composed about her. Half shrouded, however, for in the dark marks on her throat each one could read the remorseless grip which had done her to death.

LAY THE DEAD BODY OF A GIRL.

The tumult raged with increasing passion; yet such is the force of habitual discipline that Dean Harding had but to wave his hand and all was stilled and expectant.

"Who is it?" he asked, as with head bared reverently he bent over the form.

"I know," piped a boyish voice. "'Tis poor Annie Burgess, who lived with her mother, Widow Burgess, over by the Pines."

Surely! There were a score of assents, for the girl had been a village belle and the object of many an admiring glance.

"Make a litter of that shawl and bear the body to the seminary," continued the Dean. "Hold! Are there any evidences to be noted? I can discern none. You, Palmer, hasten to the village and notify the authorities. And now, young men, disperse to your duties. May this dispensation warn you of the nearness of eternity. Wait, Hawkins; I wish a word with you."

A tall, fair young man, dressed with clerical precision, whose face was colorless save that the lips were blue, leaned against the wall, his eyes covered with his hand as if in silent prayer. All the others obediently withdrew except Henry Main, a square-set, determined-looking young fellow, with heavy eyebrows, black eyes, and compressed lips, a tutor of natural philosophy at the academy, who stood at a little distance unobserved beneath the shade of a low-boughed chestnut.

"David, my boy," resumed the old man, affectionately, "I have reserved for you a task for which your gentle, sympathetic nature is meet—why, man, what is the trouble? Is death so frightful to you? Don't you know that we servants of God are its masters? Don't you believe"——

"It's a dream," murmured Hawkins, incoherently. "I say no! 'Tis false! I—oh, dear Dr. Harding, pray, pardon me. I was for the moment overcome. That ghastly sight! Ah! it has been removed. How shocked Grace will be! Didn't you have something to ask of me?"

David Hawkins set his jaws and straightened his form, and his brown eyes looked calmly into the kindly, anxious face of his preceptor.

"My boy, you are too emotional, too sensitive, and I fear Grace's adoration is not a corrective. A tender heart is a requisite of our profession, but it should be sustained by nerves of steel. Remember, we are physicians, and though we minister to souls it is often through physical anguish. I was about to ask you to bear these sad tidings to the widowed mother, but I fear"——

David wavered, and then stood rigid.

"I will go, sir," he said, "never fear. I know the poor lady, and it is proper that she should receive the wound from a friend."

"That's the spirit."

"Give my love to Grace. She is my heaven."

"Hush!" said the Dean, reprovingly, yet a smile bespoke his parental pride, and with a hearty handshake the twain separated.

"The unspeakable villain!" muttered Henry Main as he came forth from his hiding. He approached the spot where the dead girl had lain. He picked a crushed flower and kissed it and placed it within his breast; then, with bowed head, he went slowly to his room.

The physicians mutilated the fair form. The Coroner summoned a sapient jury, who wagged their heads over the evidence. It was brief and piteous in its paucity. The young girl was about to become a mother, and she had been choked to death. From a vast murmur of whispered scandal and surmise the two facts emerged and remained. Gradually the murmur died away. Gradually the tragedy was accepted as a mystery. The hills slept just as peacefully, the brook laughed with the sunshine or scowled with the clouds, and gradually the direful clanging of the seminary bell and the distorted face beneath the ivy became but an exciting reminiscence to be rehearsed of evenings at the village store.

But a purpose had come to Henry Main which developed his normal tenacity. For weeks after the discovery he changed the quiet, reserved course of his life by mingling among men. Each group, and there were several in this microcosm, suddenly appreciated what a pleasant, affable fellow Main was, so modest, and such a good listener. He did not even scorn to join a knot of lads on the campus, and this he did so naturally that their conversation was scarcely interrupted and never diverted by his approach. He made numerous and unnecessary purchases in the village, too, and charmed the idlers by his condescension. But in vain! He could not add to his own knowledge, and how inefficient that was, yet how convincing! And so, as new interests supplied new topics, Henry Main returned to his life of reclusion, and his temporary sociality, if noted at all, was merely considered another of the pedagog vagaries, and with these Armway was prevalent.

"I WILL GO, SIR."

But Henry Main grew obstinate in disappointment. He had loved Annie Burgess with the fervor of an Eremite, and the girl had carelessly coqueted with him. He had detected a tenderness in Hawkins's manner toward her, though apparently they were casual acquaintances. Once he had reproached her for it, and she had laughed a reply which was more a taunt than a denial. He knew, in common with the public, that Dave Hawkins was engaged to Grace Harding, the daughter of the Dean. These were but threads, but from them Henry Main's intuition or judgment had woven an accusation against the young theologian which caution warned him was too ridiculous to be revealed.

One night the tutor sat alone in his room. His work preparatory for the morrow was finished; he was free to dwell upon his secret design, and he did. Was there not some way to coerce this man to confess? He was no coward; threats of exposure would meet with derision and daring. But suppose the attack should be made from within? He had seen Hawkins at the sight of his victim waver on the brink of disclosure. Suppose that he could once more be brought there, might not horror and remorse drag him over? The man had not the moral cuticle of a villain. His soul was as impressionable as a child's. True, his will was strong, vigilant, aggressive; but would it anticipate a revolt, would it guard his rear? Time, too, was so insidious, breeding a security which in time would breed oblivion. Ah! if then that soul might be caught unawares, would it not cry aloud for absolution?

In the very midst of this perplexing pondering, while Henry Main's mind was training, the image of his old mother floated before him. There she sat as he had seen her a hundred times, in her armchair, her Bible opened on her lap, but her spectacles in her hand, and her head thrown back as if in revery. Surely no

son could be more dutiful and devoted than he hoped he was—that kindly wrinkled face was inexpressibly dear to him—but why at this instant, when his thoughts were so closely engrossed with a subject most foreign to her, had it appeared before him?

Henry Main was by nature a questioner; one who knew that every effect had its cause; in that one truth he implicitly believed. The phenomenon seemed so unaccountable to him that he reflected over it until weariness drove him to bed, and then, disheartened, he recalled with bitterness Newton's simile of the boy gathering pebbles on the shores of an unknown sea.

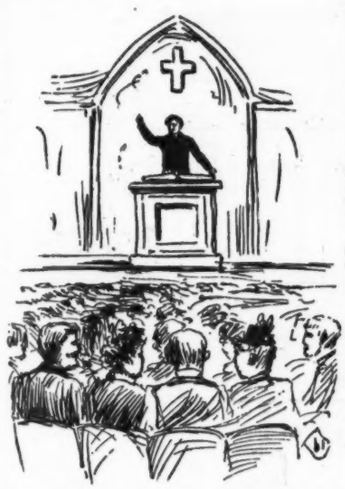
But the morning brought a suggestion to him so consonant with his purpose that when Saturday's half holiday came he drove to his mother's home in hopes that a visit might reduce it to proof. It was Sunday afternoon after dinner that their conversation took the desired turn.

"Mother," said Henry, "I have enjoyed this renewal of my boyish days so much. It was last Thursday evening that homesickness seized me. You seemed so near to me. Do you remember what you were doing then?"

"Last Thursday evening?" repeated the old lady, rather flustered at fixing an event; "mercy me, that seems a long ago, and things I did when a girl only yesterday! Was it then that I sold the eggs? No. Or when the parson called? No; there's a Sabbath since. Last Thursday? I know, for I made pies Wednesday. Why, my child, of course! Your Aunt Tabitha spent the day with me, and when Jim came for her after town meeting it was 9 o'clock, so I just sat down to read my Bible; but I couldn't keep my thoughts from my boy; so I rested my head back and prayed for your well-being and eternal salvation."

"Maybe that was why I thought of you," said Main in an awed whisper.

"For certain," replied his mother, confidently. "When the face of one absent comes suddenly before you, you may be sure that one is thinking of you. Why, your father used to say that he could tell any time o' day what I was doing by just thinking of me, and never any mischief neither. And there was your Cousin Jane, she that"——



"WHOSOEVER SHEDDETH MAN'S BLOOD."

Main let the good old soul exhaust her reminiscences uninterrupted. He had learned what he had sought and it had proved what he had suspected. Now what did it signify? Was it a coincidence or was there such a thing as thought transference? Main did not believe much in coincidence; he considered them a too facile reason, like the feminine "because." As he drove back to Armway he studied the alternative until he was absorbed and fascinated by it. If there only was such a cause for this effect, then, if patience and practice could avail, he would achieve it. And if he once did, when opportunity gave an opening, then let Hawkins take heed lest his soul should betray the sins of his flesh.

Time rolled on. Age and death wrought their changes; otherwise, Armway dozed in the immortality of Rip Van Winkleism. Henry Main became Master of the Scientific School, a savant world-renowned, but the same impassive, determined man of old, living the same life in the same rooms, animated by the same secret purpose which daily seemed more feasible to him. He was respected by the boys with that wholesome respect which is akin to fear. None of them ever dared to play pranks or resort to tricks with him. It was current among them that Prof. Main could see out of the back of his head, and that he knew just what anyone was thinking about.

The Dean was dead; but in his stead ruled his son-in-law, David Hawkins, perpetuating his memory by his similarity in erudition and beneficence. A famous man, too, was Hawkins. A theologian trenchant in polemics, a pulpit orator with a tongue of flame. When it was announced that he would preach, the tidings spread through the countryside, and old and young flocked to the chapel.

One great, irretrievable grief had come to David Hawkins in early manhood. His wife had died in childbirth. A tender, affectionate creature, she had loved her husband with every heart's throb, and so had he loved her. "Never despair, dearest," she had whispered, "I must go, but I leave with you my child, my little Grace, charged throughout her being with sympathy and devotion for you. I bequeath to her my duty, my happiness, for I am weary, and even your dear eyes seem distant from me."

One great irretrievable grief; but thereafter Hawkins's life was calm and prosperous. Nor was he comfortless; for little Grace loved him with a solicitude almost maternal. Her joy was his presence, her ambition his solace. As she grew into maidenhood they were companions, and in all that was provident and defensive the younger was the elder.

There was a gentle melancholy about Dean Hawkins which had the charm of experience. He endured rather than enjoyed; he existed rather than lived. The fires of youth had evidently been evanescent with him, for he was as cold and passionless as the moon. Perhaps with him, also, there were terrific traces of eruption within, but if so they were vailed by the tranquil radiance of habitual benignity. As became a man of God, he went about doing good, and if there were spectres from the past, the fatigues of the present fended their approach.

The Nation was in mourning over a public calamity, and in loyalty so, too, did Armway sorrow. But not without hope, for it was rumored that on the Sabbath Dean Hawkins would preach in commemoration of the event. How could a blow at National life outweigh such a personal satisfaction? With open pride and secret elation the good folks far and near prepared to attend the service.

Henry Main also heard the tidings, and his dulled heart leaped within him, for he felt that his intellect had never before been so masterful, and that in the midst of the triumph of his adversary its might should become manifest.

And so the day of the Lord dawned and advanced.

Down the shaded path walked the Dean with his daughter Grace clinging to his arm; he, dignified, stately, composed, responding to frequent salutations of respect with condescension; she, gazing upward into his face with an earnestness bespeaking alike anxiety and adoration.

"Are you sure, father, that you feel well enough to preach to-day?" she asked. "You have been so pale lately, and I at least appreciate what a strain it is upon you." He patted the hand that rested on his sleeve.

"What a tender little heart it is!" he smiled. "Never fear, I shall preach without detriment to myself and to the greater glory of God, I believe."

"Remember, dear, that my spirit will be with you every minute, and if you should feel faint or weary, do look at me and my love may encourage you."

"Such words were more fitting some gallant young student entering upon his novitiate than a tried and proved veteran like me."

"I can't help it," cried the girl almost passionately. "I have instructions and they alarm me."

"There, there!" said the Dean, soothingly. "I will look at you out of very pride."

It was a vast congregation that faced the Dean, as he placed his black-covered notes on the desk. A vast congregation, expectant, receptive, almost consonant with him; yet, in its silent greeting, he seemed to be conscious of an influence, foreign and malign. And it was with a trace of nervous irritability which only Grace could detect that he announced his text: "To everything there is a season, and a time to every purpose under the heavens."

But the sensation was transient, and David Hawkins, in the swing of his discourse, soon found the engrossment of the true orator. The walls of the old chapel had often heard the Chrysostoms of the Church; but never before had they thrilled under such sublimity. Like one inspired from on high, so spoke the preacher. And the Elders nodded complacently to one another, and Grace, in a front pew on the middle aisle, bent forward with lips apart and glowing cheeks, while Henry Main, in the other, crouched dark and dubious.

But there came a passage when the Dean grew as fiercely denunciatory as one of the major prophets, and then it was that Henry Main leaned forward, his eyes intently burning, poised to seize the precious opportunity.

"Whosoever sheddeth man's blood, by man shall his blood be shed," solemnly quoted the preacher. "O wretch! didst thou think to escape the awful foreknowledge of Divine wrath? Better for thee that the millstone had been hanged about thy neck. Thy secret sin shall find thee out! Ah!" A gasp of suspense arose from the people, for Dean Hawkins stopped short with a groan, his palms averted as if forcing back some horror. "It is a dream," he muttered. "I say no. 'Tis false!" But his listeners could not distinguish the words, they were entranced by such unusual dramatic force. As for him he saw them not. The auditorium had faded away. Before his eyes was a supine form beneath a vine-draped wall, its face half vailed by the ivy leaves, yet revealing distortion, its throat displaying the dull marks of violence. Within his ears resounded the voice of an overpowering will, thundering: "Confess! confess! lest thou diest like a dog!"

Dean Hawkins's lips began to move in obedience when that voice was silenced. Then that vision sped before a calm holy light, and amid its radiance appeared, the face of his daughter Grace shining forth pity and forgiveness. The face of his daughter Grace, yet through its deep tender orbs so jealously watching him, seemed to penetrate the soul of his dead wife.

Dean Hawkins wavered and trembled, and then stood steadfast and at peace. "Thy secret sin shall find thee out," he repeated, "unless, haply, thou shall first be summoned to answer before the tribunal of Almighty God, to whose name wepraise."

Once more the wavering, but slowly increasing; a stagger, a fall! The body of the preacher lay prostrate on its face. Deep fear seized the people. In a tumult they rushed from the chapel, and left Grace Hawkins alone with her dead.

The Varnish Tree.

There are several varieties of the varnish tree. That in Japan, whose botanical name is *Rhus vernicifera*, is commonly known as the lacquer tree, and by the native name *urushi*. This tree is widely cultivated throughout Japan for its product. Incisions are cut in its bark, from which a milky juice exudes, which on exposure to the air becomes dark-colored. It is drawn off into vats, where it settles in two layers, the top one being transparent and of a yellow color. This being mixed with drying oil, forms the foundation for all colored lacquers. The black varnish is made by keeping the liquid, as drawn from the tree, exposed to the air for several days, stirring it occasionally. An infusion of gall nuts is then added, and the substance exposed to the air until the added water has evaporated, leaving a rich jet-black varnish. There are several other trees—the stagmaria, of the Malayan Islands; the melanorrhea, of Burmah, and others in the India and the South Sea Islands—from whose sap varnish can be made.

THE POULTRY YARD.

Seasonable Hints for the Professional and Novice.

Many of the fowls kept on the farm receive nothing in the way of food from the farmer's wife in warm weather when the fields, the barnyard, and orchard are their playground from sunrise to roosting time in the evening. In many ways it is wise; it makes the hens work for what they receive. This work means good health, and good health brings egg production up to its proper condition. Lazy fowls lay but little.

Farmers usually all want to have their hens laying when eggs are at top market prices. They want the profits, but how many will spend his time in keeping them in condition for good Winter laying? Let them solve the question of making hens lay in Winter and they will wonder why they had not done so years ago. There is money in eggs now. Are you able to master this problem and rake in the profits? You should.

Houses in Winter should be constantly supplied with coarse sand and loam, as well as loose hay or straw, among which hens can scratch for grain that is thrown to them. Exercise must in some way be created when unfavorable weather outside prevails. The holes and cracks of the building should be covered over with paper to keep out cold winds. These are some of the necessary attention that your flock requires if they be healthy and productive in the Winter season.—J. W. CAUGHEY.

Buff Leghorn Club.

A. W. Gardiner, Secretary and Treasurer, Springfield, Mass., sends us a circular of the American Buff Leghorn Club—a comparatively new organization—from which we make some extracts. The club was organized to place this noble breed where they belong, viz., at the top. "Our membership fee is small, and we think the benefit you will derive after becoming a member will more than pay you a hundred times for the outlay. Membership fee, $1; annual dues, $1.

"We shall issue our annual catalog as soon after the annual meeting as possible, containing rules and regulations; also giving the names and addresses of all the members, advising all intending to purchase stock or eggs to patronize any of the members, as we believe them all to be honest and upright. These catalogs we shall send to all Leghorn breeders, and all others sending for them.

"Our membership list is now over 60, which shows the favor they have won with the American fancier, as the club is now less than 15 months old. To all wishing to join the club before Jan. 1, 1893, so as to have a chance to win some of the valuable cash specials offered by the club and members at the different shows the club may select, will say they can do so by sending the Secretary $1 as membership fee, and they will not have to pay annual dues until Jan. 1, 1893. All joining after Jan. 1, 1893, will not be entitled to a chance of winning any of the club specials."

THE FARMER'S HENHOUSE.

A Simple and Convenient House Within the Reach of All.

EDITOR AMERICAN FARMER: I have always reasoned—and rightly from experience—that a laying-house in the country should be a simple, convenient house, and near the reach of the farmhouse, enabling the farmer's good wife to avoid long journeys—especially in cold or damp weather—to the henhouse for the eggs necessary for table use. Usually on many of our farms the barn is where she must go for her fruit, and it is sometimes quite a distance away. Hens that are permitted to lay anywhere they choose about the barn usually gives the farmer's wife a long hunt to find what eggs they do lay. This means time and unnecessary work; whereas if a convenient laying-house was close at hand to the home, fitted up comfortably, the flock would be contented to remain there, and their eggs would be found in some of the nests within the laying-house.

FIG. 1. PLAN OF FRONT PERSPECTIVE. 2. GROUND PLAN.

Our illustrations in Figs. 1 and 2 show a simple structure, admirably suited to the requirements spoken of. The building is 32 feet long by 24 feet wide and 12 feet high. It is divided in a center room, the entrance from the door as shown in Fig. 1. This space is 8 x 24 feet making a very useful room for feed, stove, and a repair shop or handy place to work when you desire to employ the time in this way. From this room a door on each side leads to the four pens and laying quarters, each pen being provided with a door leading into it. Nests (N) are provided in each pen, also roosts (R) and other minor conveniences. All of the pens have an entrance (E) leading outside so that the flock may be liberated from each pen when necessary, or can be shut in at night or any time you desire to keep them within the building by means of a small door that is fastened from the inside.

When ventilation is desired the small windows at either end of the building can be lowered from the top, giving an overhead ventilation. It then does not fall directly upon the flock, this being the proper mode of ventilating a building of this kind, and at the same time be certain of a draft not doing damage to the health of the occupants or flock confined in the building.

A building of this description could be erected for $100, yet it may cost more in some localities; hence it is not a good plan to give estimates as to the cost of such structures from the fact that the value of lumber is more in some States than others, and labor is also higher at certain localities. I therefore always consider it best to show in the illustrations an accurate view of the building, with ground plan and dimensions given. It is certainly an easy matter to figure up the cost with a contractor. Any farmer who desires a convenient house should try this plan. I am sure he will find it well suited to his needs.—J. W. CAUGHEY.

The victim of lynch law is usually very high strung.

Road Dust for the Henhouse.

EDITOR AMERICAN FARMER: The weather is almost too cold for the farmer to do any farm work, and now he can turn his time and attention to something else. We all know that there are innumerable little odd jobs to be done here and there, and while he can do nothing else on the farm he attends to these. I think that he could profitably turn a half hour of this time to gathering a few barrels-full or so of road dust, now that the weather is favorable, for use in his henhouse. All that it is necessary for him to do is to gather it. His wife or children can do the rest.

After the dust has been secured throw it plentifully over the floor of the henhouse. It will act as a deodorizer, and also save many valuable qualities in the poultry droppings. When the house is cleaned up take the dirt away with the rest of the matter. This forms a very excellent fertilizer for the family garden, and is far more rich in nitrogenous elements than the stable manure.

Another use of the dust is to place it at the bottom of the nests in which the hens lay. It is not only comfortable to the fowls, but checks the progress of lice. Place one or two boxfuls under convenient shelter for the poultry to bathe in. Do this and you will not regret it. —MRS. MARY HAYWARD, Hagerstown, Md.

Wheat for Fowls.

Wheat is a grain that hens like and, in moderation, should have at all seasons. In the wheat fields after harvest they naturally seek and live the greater part of their time picking up the loose wheat found about the stubble field. For laying hens this grain fed in the morning three times a week will do much toward bringing them into condition to lay. Too much, however, has a tendency to fatten rapidly, retarding laying. Good old wheat is always cheaper food than screenings. Barn-floor sweepings are nearly as good.

The Size of the Dust Box.

EDITOR AMERICAN FARMER: I see that you have been urging about the necessity of a dust box. You do not state how large a one should be provided. Please give me an idea.—PETER STARKE.

[There is no limit to the size. You can have one large enough for one hen or a greater size to accommodate four or five. The dust bath is what is wanted, without regard to size; but we should think that one large enough to accommodate six hens would be the best.—ED.]

It is easy to fail in any industry. Poultry keeping is no exception; one wrong move and it is done. These failures that are sure to come to all are what we may fitly style crisis periods—times when we feel like giving up in disgust, or be frank enough to admit we have still something to learn. In no other industry is it more true than in raising poultry. It is attention to the smaller details of this business where many patient farmers succeed while the rest fail. This is one secret about poultry keeping worth while mentioning.

JERSEYS.

The "Crescent Trend" Rapidly Gaining Favor.

Within the limits of the city of Greenville, Mich., there is a farm of 100 acres known as "Crescent Trend." This farm is owned by J. S. Crosby, of Greenville, and is used by him as a breeding establishment for, perhaps, as fine a herd of Jersey cattle as it would be easy to find. The farm has been appropriately named "Crescent Trend," from the fact that it is beautifully situated in a bend of Flat River, just above the city.

The main barn of the farm, which is, by the way, one of the largest and finest sales barns in the State, consists of three barns joined to each other at right angles, inclosing on three sides a large exhibiting yard, which is inclosed on the fourth side by the river. This barn is in the aggregate between 600 and 700 feet in length and about 40 feet in width. One of the three departments is a sale barn for Shropshire sheep, another is devoted to Shire, Clydesdale, and Cleveland Bay horses, and the third to the Crescent Trend Herd of Jerseys.

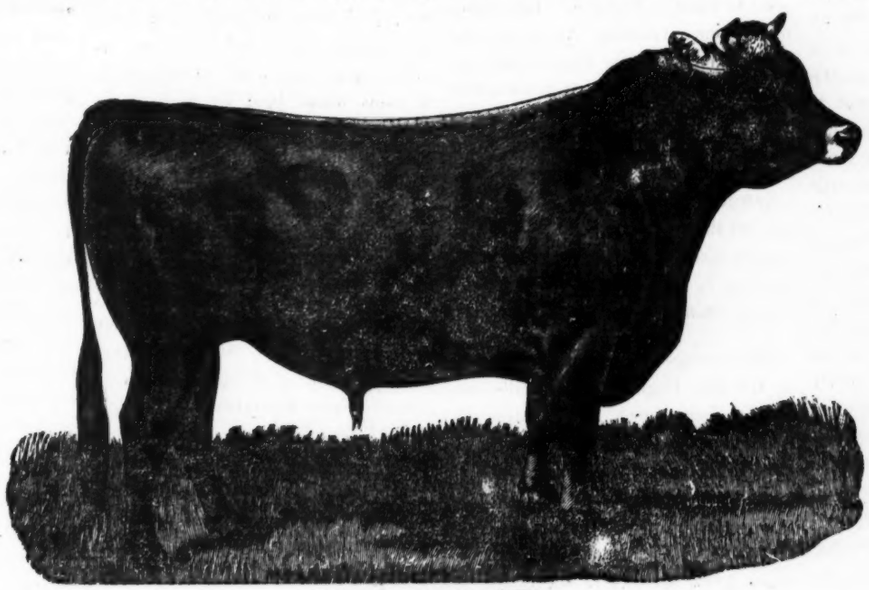
The herd is headed by the bull, whose sketch appears on this page, Eureka Coomassie 20726. Eureka Coomassie was illustrated in the *Breeder's Gazette* on Aug. 13, 1890, after which *Hoard's Dairyman* gave about three columns to the bull and points in connection with animal portraiture. This sketch was made by Lou Burk, and he asserts that it is a correct representation of the animal. Of course it goes without saying that the bull has been a prize winner, but it was not demonstrated until last year that his get was to be as highly favored as he has been. A son of his was first in his class at the Michigan State Fair, first at the Iona District Fair, and first at the Northern Michigan Agricultural Society's Exhibition, all this in the Fall of 1891. Eureka Coomassie himself carried off the usual prizes in his class. Mr. Crosby claims with reference to the breeding of animals, that it is not necessary that the animal should be ugly in shape and form in order to have quality. Eureka Coomassie has as yet no daughters old enough to be tested, but there are quite a number in the Crosby herd that will soon go forward, and if they prove to be producers it will be a strong point in the breeding of Eureka Coomassie.

We have not room here to give a description of all the bulls owned at Crescent Trend, but among others we might mention Florence's Crescent, a son of Eureka Coomassie, and almost exactly like him in size, color, and form. Among several other young bulls and bull calves, one of the most promising is Vaniah Crescent, by Crescent Rioter 23306, out of Vaniah 5th 48125. One of the finest bred young bulls owned by Mr. Crosby is Violet Crescent, sire Euroto Pogis 12434, and dam Violet 3d 3240. This bull traces on his sire's side to Imp. Mr. Micawber 556, Imp. Defiance 196, and Imp. Lisette 492. The pedigree of Violet 3d traces every ancester to importations to the Isle of Jersey, or to the celebrated Dauncey herd, which is known to be of pure Jersey blood.

Among the cows we may mention Highland Ochra 41863. She was sired by Rioter's Combination 10636, and out of Rival's Ochra 10172. This cow traces on her sire's side to the Imp. Marjoram 3239, who was the dam of Marjoram 2d 12805, test 15 pounds. On the dam's side, the dam herself, Rival's Ochra 10172, tested 19 pounds and 10½ ounces, and Ochra 2d, 16 pounds and 6½ ounces.

Mountainside Echo 59241 traces through much the same line of breeding on her sire's side as Highland Ochra, tracing to Imp. Stoke Pogis 1259 and Imp. Marjoram 3239. Her dam, Echo 2d 5785 is of an entirely different strain, tracing to Imp. Jupiter 93, Imp. Edith 167 and other noted animals. Among other cows we may mention Vaniah 5th 48125, dam of the young bull Vaniah's Crescent mentioned above. This cow is sired by Diana's Rioter 10481, and her dam is that celebrated cow Vaniah 6597. This cow Vaniah 6597 was tested for seven days from Jan. 28, 1883, to Feb. 3, during which time the thermometer was 12 to 18 degrees below zero, and gave 216 pounds and four ounces of milk, which made 15 pounds and nine and a half ounces of butter.

With regard to tests, Florence of Somerset 42149 has perhaps as good a line of breeding as any cow in the Crescent Trend Herd. Her dam, Florence of Avon 2d 19422, traces directly to imported animals—Pop. 6213 and Florence of Avon 13427. She traces on her sire's side, however, to Lolly of St. Lambert 5480, which cow was the dam of Mary Ann of St. Lambert 9770, test 36 pounds 12½ ounces. Also to Rambler of St. Lambert, sire of Rose of St. Lambert 20426, test 21 pounds, to Crocus of St. Lambert 8351, test 17 pounds 12 ounces, and to Camelia of St. Lambert, dam of Moss Rose of St. Lambert, 14 pounds one-half ounce. This cow thus combines in her breeding four of the celebrated St. Lambert cows, testing, respectively, 36 pounds 12½ ounces, 21 pounds, 17 pounds 12 ounces, and 14 pounds one-half ounce. The herd is owned by Mrs. J. S. Crosby, but all correspondence should be addressed to J. S. Crosby, Greenville, Mich., who will take pleasure in giving any further particulars he may be able with reference to stock now coming on. Messrs. Crosby have issued a very handsome catalog of their different breeds of horses, cattle, and sheep, and would be pleased to send a copy of the same to any one applying, free of charge.



EUREKA COOMASSIE 20726.

According to a series of experiments made some time ago by Sir J. B. Lawes, of Rothamsted, England, it was found that cattle utilized eight per cent. of the dry substance of their food; the sheep 12 per cent., and the hog 20 per cent.

Meeting of Iowa Stock Associations.

The Improved Stock Breeders' Association will hold their 19th annual convention at the Russell Opera House, Humboldt, Iowa,, Dec. 7, 8, and 9. George W. Franklin, Atlantic, is the Secretary. A very interesting program has been prepared.

The Iowa Short Horn Breeders' Association will meet at the same place on Dec. 6. Program and further information can be had by addressing C. W. Norton, Secretary, Wilton, Iowa.

The Iowa Swine Breeders' Association will also meet in the same town. The Secretary is Geo. Prine, Oskaloosa, Iowa.

The Iowa Sheep Breeders' and Wool Growers' Association, of which C. F. Curtiss, Ames, Iowa, is Secretary, will hold a meeting at the same time as the Improved Stock Breeders' Association.

Prizes for Duroc-Jerseys.

The National Duroc-Jersey Record Association offers the following special premiums for Duroc-Jersey swine to be awarded at the World's Columbian Exposition in 1893:

Best boar, any age, bred by exhibitor	$25 00
Best sow, any age, bred by exhibitor	25 00
Best herd, not less than four, bred by exhibitor	30 00

Animals competing for these specials must be recorded in the National Duroc-Jersey Record Association at or before the time of entry for the exhibition, and the exhibitor must file with the Secretary of the National Duroc-Jersey Record Association a duplicate of the entry made with the Columbian Exposition. Competition open to the United States and Canada. Premiums will be paid on certificate of award from proper officer of the World's Columbian Exposition, giving name of exhibitor, with names and numbers of the winning animals.—G. W. PHILLIPPO, Secretary, Geneseo, Ill.

Stable Talk.

There is no need for a farmer to sell beef if he cannot sell it at a profit.

Do not be stingy with the bedding you give the horse, and during the cold weather it can be safely said that the horse should have more bedding than he has during the Summer, but not too much. Straw makes the best bedding by all means, but the use of an abundance of litter is liable to result in making the horse's feet tender, causes swelled legs, and also renders the horse delicate. Lord Pembroke, an authority on the subject, says: "Swelled legs may be frequently reduced to their proper natural size by taking away the litter only, which, in some stables where ignorant grooms and farriers govern, would be a great saving of bleeding and physics, besides litter. I have seen by repeated experiments legs swell and unswell by leaving litter or taking it away, like mercury in a weather glass."

Meetings of Horse Associations in Chicago.

The date of the Horse Show is postponed one week later. The Shetland Pony Club meeting, on that account, will be held Dec. 8, with other particulars the same as before announced.—MORTIMER LEVERING, Secretary.

The date for the eighth annual meeting of the American Shire Horse Association has been changed frm Nov. 22 to Dec. 6, at 7:30 p. m., at the Sherman House. This date will better accommodate members who will wish also to attend the National Horse Show.—CHARLES BURGESS, Secretary.

It does not require any great knowledge as to how to cure pork. A little care is the principal thing needed.

THE AMERICAN FARMER.

"*O fortunatos nimium sua si bona norint agricolas.*"—VIRG.

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THE BUREAU OF ANIMAL INDUSTRY.

Secretary Rusk "points with pride," and very commendable pride, to the operations of the Bureau of Animal Industry, at the head of which is Dr. D. E. Salmon. He summarizes the work and cost of the suppression of pleuro-pneumonia, showing the entire cost to have been less by $100,000 than was paid out by Great Britain during seven years as indemnity for slaughtered cattle alone. He also points out that the total loss to the cattle-growers of Great Britain by this disease in deaths alone has amounted to not less than half a billion dollars, and that this is the only country in the world where the disease, having once gained a foothold, has been entirely eradicated. The number of cattle inspected at interior markets the past fiscal year amounted to 431,400; of these, 285,984 were tagged for export. The cattle-carrying vessels inspected numbered 917. The tagging system has been found ample for identification in the few cases where it has been necessary to trace the animal back to the farm whence it was purchased originally. He cites the gratifying confirmation, not only by the previous history of the animals so identified, but in many cases by distinguished authorities abroad, of the diagnoses made by the American inspectors in Europe refuting the existence of contagious pleuro-pneumonia claimed by British inspectors to have been found in a few cases among American cattle, of which 368,014 head were inspected by the American inspectors in Great Britain. Imported animals inspected number: cattle, 2,673; sheep, 373,517; and 74 head of swine. Thirty-eight packing houses are now under inspection, an increase of 16 since last report. The total number of animals subjected to both ante and post-mortem examinations for the fiscal year exceeds 5,000,000, of which 1,267,329 were hogs, of which only two per cent. were found to be affected with trichinæ. The total cost of inspection of animals and meats and of animals imported and exported amounted for the fiscal year to $370,000.

THE ENGLISH press continues to be filled with the gloomiest pictures of the condition of the English farmers. Competition with cheap American grain and meat is constantly becoming more hopeless. Wheat is now but 29 shillings a quarter (less than 91 cents a bushel) in London, where 20 years ago it was 52 shillings a quarter ($1.62 a bushel). The farmers thought they could save themselves by turning their wheat fields into pastures, which process has continued until there are only 2,300,000 acres sown to wheat in England. Then cheap meat from America, Australia, and South America came to take away the profit on pastures, and it is estimated that the live stock of Great Britain is worth from $50,000,000 to $100,000,000 less to-day than it was a year ago. The only remedy that the papers can suggest to prevent the extermination of the British farmer, and they are very reluctant to consider it, is a protective tariff against foreign grain and meat.

THE average earnings of the employes in the New England cotton mills—including men, women, and children—is $336 a year. The average earnings of those in the mills in the South is $210 a year. But only 14 hands are necessary to every 1,000 spindles in the New England mills, while it requires 24 hands for every 1,000 spindles in the South, so that the pay-roll per 1,000 spindles in New England is $4,704 per annum, against $5,040 in the South. This gives the Yankee manufacturers about seven per cent. advantage over their competitors in Dixie. The latter, however, have the advantage of nearness to the cotton fields and less freight to pay on raw material, but against this again is the greater distance to market for the finished product.

HON. LEWIS SPERRY, of Connecticut, Democratic Representative, writes to the *Tobacco Leaf* stating his firm belief that the Democratic party will not attempt to change the duty on foreign tobacco for many years to come.

TARES IN OUR WHEAT.

The attention of farmers in the Northwest is being called to two pests that threaten to do more damage than any of the animal plagues that have so far fastened themselves upon this country.

The source of danger is two noxious plants, the Russian thistle and the French weed. They are both foreigners, as their names indicate. The Russian thistle flourishes in the Black Sea district of Russia, and was brought to Bon Homme Co., S. D., some years ago by a colony of Mennonites. It spreads rapidly, strewing its seed by rolling over the prairie like the tumble weed. Wherever it goes it simply takes possession of the ground and threatens to capture the best wheat land of South Dakota.

The French weed was brought into Manitoba and North Dakota by the French Canadians who worked on the railroads. It has already made some regions of Manitoba and the Red River Valley nearly worthless for wheat farming. It is eaten by cattle, and taints milk, butter, cheese, and beef to such an extent as to render all unmarketable. It ruins wheat land by fouling the crops.

It is a subject demanding the greatest consideration by the State and National authorities.

IN spite of the cheapness of cotton in this country the importations from abroad still continue to increase. In the nine months ending Sept. 30, 1892, there were imported 23,265,684 pounds of cotton—mostly Egyptian—against 19,569,847 pounds for the corresponding period of last year. The same remark applies to wool. During the same time there were brought in 122,970,977 pounds of wool—mainly merino-blooded—against 104,822,778 pounds for the first nine months of last year. These figures would indicate an annual increase of nearly 20 per cent. in cotton importations, and a little over that in wool importations. The movement in the South for a restrictive duty on cotton has as much reason as that for a tariff on wool.

A FARMER will grumble about paying a few dollars a year to get good roads, yet pay hundreds of dollars a year in cash for depreciation of vehicles which are knocked to pieces by the wretched highways. The money that is lost every year by the unnecessary damage to wagons and carriages through bad roads would give us a splendid system of highways.

IF you think your boy is getting so much education that he will not be satisfied to stay on the farm, give him considerable more, and he will see that it is to his interest to stay there. To give a boy just enough education to make him a $10-a-week clerk, or a jack-lawyer, or a "plug-doctor," is a certain way of rendering him dissatisfied with hoeing corn or mauling rails for a living. But if you can give him a good deal more education he will realize that the farm offers a much better opportunity for his brains, his grit, and his education than he can find anywhere else. He cannot have too much education to be a good farmer—the more he has the better farmer he will be. This is an age of education; no man can make much success in any calling unless he has education, and a good deal of it. The more he has, the greater will be his chances of the highest success.

WE not only need more tobacco, but also better tobacco. We are buying entirely too much high priced abroad, and not raising enough of it at home. Every grade of American tobacco can and should be improved, so that it will put more money into the pockets of the growers. There should be experiment stations in every tobacco-growing locality to carefully test seeds, varieties, methods, and soil, and their adaptations to each other, so as to produce the best results and secure the greatest profits. It is not necessary that these should be established by the State. They do not cost much to maintain, and little groups of growers will find it to their interest to start them up and keep them going.

THE farmers of northern Michigan are in great luck this year. The potato crop elsewhere has been quite light, leaving few to send to market, while theirs has been beyond all precedent. They have between 1,000,000 and 2,000,000 bushels to send to Chicago, where they bring fine prices. Chicago eats about 30 carloads of potatoes a day.

AT the National Farmers' Congress held at Lincoln, Neb., the meeting was unanimous in favor of organized efforts for better roads. This is the real solution of the difficulty. Let all the farmers in a locality unite in their efforts to secure better roadways, and their endeavors will not be unavailing.

THE AMERICAN FARMER *is only $1 a year.*

DON'T be continually dosing your animals with strong drugs. It is very doubtful whether a drug introduced into the stomach does good. It is certainly much more likely to do harm than benefit. Voltaire once described a physician as "a man who puts drugs, the nature of which he knows nothing, into the body, of whose functions he is ignorant, to cure a disease he cannot understand." This is both witty and true. A great gain for humanity was secured when physicians were induced to desist from relying on drugs and place their faith upon proper food, air, and nursing to cure disease. The same is true in regard to animals. The less drastic "purgatives," "correctives," etc., given them, and the more pure air and water, clean stalls and pastures and good food they have the greater their chances of health.

THE Ohio Experiment Station has been paying some attention to a wonderful product, entitled "Cole's Domestic Coffee Berry," offered for sale by a man who styles himself, "C. E. Cole, Buckner, Mo." He offers the seed at $3.50 per pound in quantities, and 25 cents per 100 seeds in small quantities. He sends out some very captivating literature, with the strongest kind of "testimonials," and a fine picture of the plant in full bloom. The Experiment Station finds that the plant is merely the well-known Japan pea; that the berries are simply peas, and the roasted and ground product also peas, with enough genuine coffee to give them a certain amount of flavor.

Get up a Club for THE AMERICAN FARMER.

THE experience of the Surgeons upon our ships of war will be of use to our farmers in the harvest fields next Summer. As everyone knows, the labor in the engine-rooms of great steamships is of the most exhausting kind. The heat is intense, and the firemen drink immense quantities of water. But it has been found that pure water is much less satisfactory to them in every way than that in which oatmeal has been mixed in the proportion of three or four ounces to every gallon of water. No reason has yet been given why oatmeal is better for this purpose than cornmeal, rye, buckwheat, or flour; but the fact remains that the firemen very much prefer the oatmeal, and think that it makes them as strong as horses.

Ask all your neighbors to subscribe for THE AMERICAN FARMER.

COMPLIMENTS.

The Best Agricultural Paper.

I have received two copies of THE AMERICAN FARMER, and it is the best agricultural paper I ever saw. It contains, too, the most useful information to any family that lives on a farm. I am advanced in age and live in this city, but take much interest in all useful publications which are useful to the rising generation.—J. H. BATES, 912 Pearl street, Los Angeles, Cal.

Quite Interesting.

The paper is quite interesting, and I wish it success.—EDWARD NORTON, Farmingham, Conn

Very Well Pleased.

I am very well pleased with THE AMERICAN FARMER.—E. A. WIGGINS, Shawnee, Okla. Ter.

The Best Agricultural Paper.

THE AMERICAN FARMER is the best paper that comes to our home, and several come.—JENNIE ATCHLEY, Floyd, Tex.

PERSONAL.

Amos Heavilon, a wealthy farmer of Frankfort, donated the sum of $35,000 to Purdue University, at Lafayette, Ind.

BUREAU OF INFORMATION.

Henry Doble, Eureka, Mo.—according to Mr. Edward Atkinson, who has made the subject a careful study and has compiled many tables on the cost of railroads and the changes in price, the transportation of grain 1,500 miles by land decreased between 1872 and 1887 over 34 cents a bushel. The increase of railroads in this country has acted in two ways in reducing the price of grain. It has not only brought the grain nearer to the markets, but by opening a large extent of land it has greatly increased the supply of grain. In fact, between the years we have mentioned above, the product of grain in the United States was doubled. The reduction in the cost of ocean transportation from 1872 to 1887 was over 18 cents a bushel. Mr. Atkinson estimates that through the reduction from various causes, $1 per bushel in 1887 would have given as much profit to the farmer as he would have gained from $1.60 in 1870.

J. H. R. Bullard, Marshall, Mo.—1. Philosophers and statisticians have compared figures and find that the limit of the earth's capacity is 5,294,000,000 human beings; also, that this number will be reached before the close of the 21st century. 2. Contraction of the iron used in constructing the great Eiffel Tower makes that famous structure eight inches shorter in Winter than it is during the hot Summer months. 3. The man who is perfectly proportioned weighs exactly 20¾ pounds for every foot of his hight.

Ezekiel Hendricks, Hollister, Cal.—The outer rail of a railroad track on a curve is raised higher than the inner rail in order to lessen the danger of the train running off the track in rounding a curve. The locomotive is, of course, pushing straight ahead, and nothing but the pressure of the outer rail on the flanges of the wheels keeps the locomotive from climbing over that rail and leaving the track. By placing the inner rail on the lower level the weight of the locomotive is made to lean that way, thus relieving the pressure on the outer rail caused by the forward motion. The sharper the curve and the greater the speed at which trains are to pass, the steeper is the slant made from the outer to the inner rail.

J. J. Pringle, Glenville, Wis.—The thinnest tissue paper measures 1-1200 of an inch in thickness. Iron has been rolled so thin as to measure only 1-1800 of an inch in thickness.

NEW PUBLICATIONS.

STUD BOOK OF THE SELECT CLYDESDALE HORSE SOCIETY OF AMERICA, VOL. 1. Published by the Select Clydesdale Horse Society of America, Charles Irwin, Secretary, Topeka, Kan.

This is the first stud book issued by this society, but from the success it is attaining, it will not be its last, by any means. The horses of the type fostered and encouraged by the society are superior to those registered in the Clydesdale Stud Book, and the society claims that no other stud book ever issued contains so great a proportion of prize winning blood as does Vol. 1. The book contains over 240 pages, and is a model of excellent typography, bound in a durable manner. The constitution and officers of the society are printed in the first part of the book, followed by the introduction, written by Mr. J. B. McLaughlin, Topeka, Kan. The introduction to Vol. 3 and Vol. 1 of the Stud Book of the Select Clydesdale Horse Society of Scotland is reprinted—the former giving the origin of the Clydesdale horse, and the influence of the Clydesdale Stud Book on that type of horse, while the latter gives a full and complete history of the horse. Throughout the book are fine half-tone illustrations of animals, the pictures being directly taken from life. In all cases where the animal is imported his number is given as recorded in the stud book of the society in the country from whence he came. Altogether the book is full of interest to horsemen in general, and especially to those who own Clydesdales.

PIGEON QUERIES. A book for pigeon breeders and fanciers. Compiled by E. E. Quick. Published by *The Fanciers Review*, Chatham, N. Y. Price 25 cents.

This is a book on the order of "500 Questions and Answers in Poultry Raising," and is as valuable to the pigeon fancier as the latter is to the poultry raiser. The book contains over 30 pages of questions and answers on numerous topics pertaining to the breeding and care of the pigeon, with descriptions of the various breeds. The book has a complete index, and any subject can be reached without much trouble.

NATIONAL REGISTER OF FRENCH DRAFT HORSES, VOL. VI. Published by the National Register of French Draft Horses, C. E. Stubbs, Secretary, Fairfield, Iowa.

This is a splendidly gotten up book of near 500 pages, printed in large type on heavy paper, and securely bound in blue, with gilt edges. The book was edited by the Secretary, and much credit is due him for the neat and attractive appearance of the volume. The book contains entries from No. 5,500 to 7,000, and appendix for animals having four or five top-crosses from No. 1 to 208, with transfers and complete indices. The book also contains the constitution, by-laws, rules of entry, and list of officers and members of the National Register. The proceedings of the 12th and 13th annual meetings held at Chicago, Nov. 20, 1888, and Nov. 6, 1889, also embellish its pages, and altogether the book is fully in keeping with the National Register of French Draft Horses.

THE FARMER'S INSTITUTE QUESTION BOX ON CATTLE AND THE DAIRY. Published by J. Wallace Darrow, Chatham, N. Y. Price 30 cents.

This is a book of practical and authentic information on various topics pertaining to stock and dairy management as discussed at Farmer's Institutes, dairy conventions and in the agricultural press, with an introduction by Hon. Geo. T. Powell, Director of Institutes for New York State. The book contains the following chapters: Chap. I—Cattle: Their Care and Management; Chap. II—Feeding and Food Rations; Chap. III—Milk and Butter Production; Chap. IV—Cheese-making. It will be found of practical value to every farmer and dairyman.

THE SWISS RECORD, VOL. 1. Published by the Brown Swiss Breeders' Association. N. S. Fish, Croton, Conn., editor.

This is a book of some 148 pages, prettily bound in brown-colored paper, with gilt ornamentation. It opens with the constitution of the association, with the regulations, and officers and members of the same in rotation. The scale of points for Swiss cattle and directions for making entries take up nearly two pages. Bulls, tracing to importation, are recorded from number one to 422, and cows, tracing to importation, occupy inclusively from one to 607, making the total number of animals recorded reach 1,029. The transfer list of cows and bulls is given in full, taking up nearly 14 pages. A complete history of the breed is given, and this is supplemented with notes from various breeders, all of which genuinely praise the Swiss cattle. The remainder of the book gives an alphabetilist of the bulls and cows recorded in the volume.

AMERICAN RAMBOUILLET RECORD, VOL. 1. Published by the American Rambouillet Sheep Breeders' Association, L. B. Townsend, Iona, Mich., Treasurer.

This is the first flock book gotten out by this association, and considering the very short time in which the association has been in running order it makes a very good volume. The book has a frontispiece, finely executed, representing three Rambouillets, bred and presented by F. von Homeyer, Pomerania, Prussia. The history of the breed is given in full. The work is by L. Bernardin, manager of the National Sheep Farm of France, which was anonymously translated from French into Spanish, and liberally translated from Spanish into English by Philipp Horvath. The history of Rambouillet sheep in America is given in a concise and clear manner, and this is followed by a history of the association in the United States. A page by Mr. Thomas Wyckoff is devoted to the characteristics of the breed and their wool. A list of officers, constitution of the association, rules of registry, the record, index of breeders and general index fill out the volume, which, taken in all, make the book a valuable one for all who possess sheep of the Rambouillet type.

THE NATIONAL DELAINE REGISTER, VOLS. 1, 2, 3, and 4. Published by the National Delaine Merino Sheep Breeders' Association. W. B. Pollock, Canonsburg, Pa., Treasurer.

Volumes 1, 2, and 3 are bound together in one book, and volume 4 makes a book by itself almost as large as the three preceding volumes together, showing how the association is growing and with what favor it is being received by the breeders and owners of this variety of sheep in the United States. The association succeeded the Victor-Beall Delaine Merino Sheep Breed[illegible] Association, of Washington County, Pa., and it has risen Phœnix like from its predecessor. In the first book, which is composed of over 350 pages, there are 6,137 registries of ewes and rams, of which the former number 4,474 and the latter 1,663. In this same book quite a number of pages are devoted to flock histories. In both books the constitution, list of membership, etc., appears, and both books are abundantly illustrated with finely engraved pictures of animals from life. In volume 4, the ewes are numbered from 4,476 to 6,996, while the rams include all numbers from 1,665 to 3,489. The association was established in 1882 with six members, and at the present time there are over six times that number on the rolls as members. From present indications we predict a bright future for the National Delaine Merino Sheep Breeders' Association.

MAINE STATE JERSEY HERD BOOK, VOLS. 1, 2, 3, 4, 5, AND 6. Arranged and edited by N. R. Pike, Winthrop, Me. Published by the Maine State Jersey Cattle Association. Price $1, or the entire herd book, $6.

Volumes 1, 2, and 3 are bound together and make one book, the remaining three volumes form separate books, and together they include about all the Jersey cattle bred in Maine since the organization of the Association. All the books are printed on good paper and durably bound in cloth. The Association was chartered by an act of the Maine Legislature in 1875, and believing the superiority of Jersey stock for dairy purposes, and recognizing the advantages of registering pedigrees of thoroughbred Jersey cattle, and believing a State herd register could be more correctly and economically kept than one embracing a larger territory, no labor has been spared in carefully compiling the work. In the first book some of the conditions to be complied with to insure success in dairying are given. In Vol. 5 a condensed history of the Association is given, followed by a short essay of Mr. S. T. Floyd's on "Why I Prefer the Jersey." In all the volumes a complete list of transfers is given, and all are perfectly indexed, so that no difficulty is found in obtaining what information is wanted. The first book is illustrated, and the total number of animals registered in the volumes is 2,455 cows and heifers, and 880 bulls. The books are not only of value to the farmers in Maine possessing cattle of this breed, but to those in other States as books of reference.

The Thank-You Prayer.

Once upon a time I listened,
Listened while the quick tears glistened,
'Neath the drooping lids that hid them as a little prattler said—
While a father's arm caressing,
Round the precious form was pressing,
And against his pillowing bosom lay a dainty, curl-ringed head.

"Papa," spoke the little trembler,
"Papa, dear, do you remember
When that gentleman was here to tea, his sober, solemn air?
How he bent his head down lowly,
And his words came soft and slowly,
As he prayed to God in Heaven such a pretty thank-you prayer?

"And I wonder all about it,
For of course I could not doubt it
Was a funny way that made us be so kind to one another.
To say 'thank you' for each present,
In a way so very pleasant,
And forget that God might like it; so I asked my darling mother.

"But she looked at me so queerly,
And her eyes were very nearly
Full of crying, and I left her; but I want to know real bad"—
Here the shy eyes lifted brightly—
"Is it treating God politely
When He gives us things, to never mind nor tell Him we are glad?

"And since then I have been thinking—
Papa, dear, why are you winking?"
For a slow sob shook the strong man as each keen, unconscious word
Pierced him, all the past unvailing,
And the cold neglect and failing,
All the thoughtless, dumb receival—how the heedless heart was stirred.

"God is good and Jesus blessed them,
And his sacred arm caressed them;"
Murmuring thus he touched the child-brow with a passionate swift kiss
Of the little one beside him;
Of the angel sent to chide him:
And a thank-you prayer, ah, never more his living lips shall miss.

—*Woman at Work.*

By the Editor's Fireside.

CHRISTMAS with its joyful meetings is drawing near. In the homes all over this broad land, and beyond the waters as well, happy hearts are counting the days before the morning dawns which commemorates that other day when the morning stars sang together in rejoicing over the birth of the Christ into a physical body. All of the centuries since its return has been celebrated, and as the years go by it seems to lose none of its meaning, although the manner of rejoicing may have changed.

Gift-giving is one of the marked features of the time. Originally the custom merely typified the opening of the heart to all gentle influences which were thus expressed, usually in a most simple way. Gradually the custom has grown until now the exchange of presents is almost universal; and it is not confined to families, but includes friends and acquaintances also.

Like everything else, this custom, pretty in itself, full of sweet meaning and calculated, if looked at aright, to teach thought and care for others, and denial of self to obtain the means of giving pleasure to loved ones and to the unfortunate, is liable to abuse. It has become too much a give-and-take sort of thing—a feeling of compulsion and calculation which ought never to enter into the observance of the day. Persons who cannot afford to do so, whose days are full of anxiety as to how both ends may be made to meet, spend both time and money in giving because they are not independent enough to conform to circumstances. They get something costing a sum far beyond their means because they are afraid of being thought niggardly, and then worry for weeks afterward to pay the debt which they have incurred.

This is all wrong. Such gifts lose their character. They mean nothing but pain to the giver, instead of typifying tender, loving thoughts. A trifle of no intrinsic value offered out of the fullness of the heart is worth more, for it carries with it love and good wishes, whose influence, though unseen, will make the receiver happier than the most expensive thing grudgingly given.

I know it is a hard thing to do, to give a trifle when one wants to give so much, and it is especially hard where one has been in the habit of making a more generous offering; but it is far nobler to conform to circumstances, and if your friend really loves you, she will understand without a word of explanation. To her the little gift that is within your means will be just as welcome as the larger, for it is the love that prompts it which is of value. And even if it is denied you to make even a little offering, do not be unhappy. Write a note containing loving wishes right from your heart and then let be.

No doubt there will be those among the readers of THE AMERICAN FARMER who are to-day struggling to do what it is almost impossible for them to compass in this direction. It is to them that I am talking. Put worry aside. Be brave enough not to attempt what will give you sore trouble. Be just to yourself, and do not give what you cannot afford. The friendship that is affected by a failure in this direction is not worth having.

THE LONG WINTER EVENINGS.

What to Do to Make Them Pleasant and Profitable.

"What shall we do these long Winter evenings?" I hear many of the readers of THE AMERICAN FARMER exclaim, as they look out of their windows and watch the dry leaves scurrying before the wind that whistles and moans around the house and away over the fields, lying bleak and bare as far, perhaps, as the eye can reach.

It is often a serious question, for unless something of absorbing interest fill the hours, the young people, at least, grow restless, and there is nothing more true than that Satan always finds some mischief for idle hands to do. Before Christmas mother and the girls are kept busy, but the Winter has only just then begun. Of course there is always reading, and when it is carefully considered, that is, arranged with a purpose into which the whole family may enter, it may be made profitable as well as entertaining.

There is, however, something else that may be carried along both Winter and Summer and be a source of pleasure while adding largely to mental wealth, and that is the study of Nature under the guidance of the Agassiz Association. Does that sound formidable? It is not so in reality. I know of families who have entered into this work and it has given them unfailing pleasure. One mother is in my thought just now who began with her boys when they were just of the age to feel that they wanted to go out upon the street after supper and find their playfellows. She managed to interest them to such a degree, by herself studying with them, that they never found time hanging heavily. On Summer days excursions for specimens bore the characteristics of a picnic, while having a real object which would, if carried out, add to their intellectual treasures. The boys are quite well grown now, but their eight or 10 years of such play-study has been worth a great deal to them, and has held them close to their mother beside.

The association I speak of bears the name of one of the greatest naturalists the world has ever known—Louis Agassiz—whose life was comprehended in this nineteenth century. He—

"Found tongues in trees, books in running brooks,
Sermons in stones, and good in everything."

Not a bird of the air, not a plant, not a tree or flower, not a fish of the sea, but said something wonderful to him of their life. He learned to unlock Nature's secrets, and he loved to use his keys wherever he was in order to learn laws that had been mysteries. The work which he did for the world seemed to me stupendous when I walked through the Agassiz Museum in Cambridge, which owes a large part of its attractions to his untiring labor.

He was a most enthusiastic teacher of those students who were in earnest, and he made them love Nature as he did. To one of these, Prof. H. H. Ballard, of Pittsfield, Mass., now the President of the association, the latter owes its birth. Introducing the methods of his dear old teacher into a single school, the good work spread, until there are now branches all over this country and in foreign countries. In Russia, Chapters, as they are called, have been established and are doing well, so President Ballard told me. The knowledge which the students there gain of Nature in their own country will be at the service of the students here, thus enlarging the latter's opportunities. And this is the beauty of it, for the association is like one great big school in which all scholars are mutually helpful.

And now let me tell you of the different "Chapters" which make up its great membership. First, are those in the family, when parents and children unite together in study and research. This is one of the most helpful and most delightful as well, for it creates a bond of mutual interest that holds the household together, the young people finding thus the father's and mother's society more interesting than that of the often dreaded outsiders whose influence may be strong for evil. I spoke farther back of one of these chapters. Then there are the school chapters, conducted by teachers who are willing to give strength and time outside of their regular duties for the encouragement of their pupils in this direction.

The third kind of Chapters are those made up and conducted entirely by young people. Girls and boys meet together and decide to form a branch of the Agassiz Association. They send for the hand-book entitled "Three Kingdoms," and in this is given full directions for organization; also an explanation of the few parliamentary rules needed in conducting a club, and detailed plans of work at home and in the field. It is easy enough to go on then with the election of officers and the drafting of the simple rules and by-laws necessary before getting down to the work which is a pleasure.

"It is wonderful," said Prof. Ballard, "to see what these boys and girls can accomplish when they are in earnest, and without any aid from their elders, either beyond now and then a simple direction. Some of them have made lists of all the

flowers that grow anywhere in their neighborhood, and given them their proper places, and of the birds that fly over their heads." And he says further in a little circular: "They have published papers, started museums, founded libraries. In doing this they have mastered the laws of parliamentary debate; have learned to observe with accuracy, to write with fluency, to speak with power; and after working thus for a few years, many of them have pushed themselves into schools and colleges and laboratories of the highest grade, and are now completing their self-appointed preparation for lives commanding intelligence and cheerful service."

All of this seems a great deal to claim, but it is no more than truth, and the best of it is that the boys and girls in a country neighborhood can do this work just as well as in the larger city, and even better, for they have the fields and forests near at hand for exploration. And after a good beginning has once been made the work becomes absorbing and delightful.

The fourth kind of Chapters are those made up of older people who want something to do which shall fill up their intervals of leisure and give them an interest outside of their home life, their business, and their social duties. A Chapter of this kind opens a new world to its members; adds a new interest to life, enlarging its boundaries, and giving it a far greater zest than the ordinary amusements of the passing season.

The little hand-book of which I spoke is not expensive, costing, postpaid, only 75 cents, and in its pages, besides the information mentioned, you will find out "How to Start a Museum;" "How to Collect and Preserve Plants, also Birds and Eggs;" "What to do in Winter and in the City," with many other things.

It is now just the time when people are beginning to think what to do with the long Winter evenings. Here, in what I have been telling you, is an answer, providing you have any desire to add to your intellectual riches while seeking amusement. Four persons are enough to form a Chapter of the Association, or you can join by yourself. Write to Prof. H. H. Ballard, President of the Agassiz Association, Pittsfield, Mass., for further information, if you wish, but the best thing to do is to get the book, which is a good thing to have, whether you conclude to become a member of this army of seekers after Mother Nature's secrets or not.—EMILY S. BOUTON.

ABOUT SOME WOMEN.

Worthy of all Reverence and Admiration.

One of the women who stood foremost in the ranks of literature was Amelia B. Edwards, considered and universally acknowledged as the greatest scholar among women. She passed away in London last Spring at a time when she had attained the zenith of fortune, fame, and good fellowship, and while yet in the prime of womanhood. She was of English birth, her father being an officer in the British army, and her mother a descendant of the Walpole family. When only seven years of age a poem of hers was published, entitled "The Knights of Old," and at 12 a short historical novel made its appearance. Showing some aptitude for art, her friends advised her to lay aside her pen and substitute the pencil. Again, when at the age of 14 she devoted herself to music, and continued to do so for seven years. About that time, however, she wrote a story for *Chambers's Journal* which was liberally paid for, and that determined her career. Then an extensive course of travel awoke her enthusiasm for Egyptian lore and she became Secretary for the Egyptian Exploration Company. During the rest of her life she labored faithfully in this work, rousing many people to an interest in the study of the past. One of the most remarkable of her productions is her book, "A Thousand Miles up the Nile." She was a brilliant writer, critic, and scholar, and also a most successful lecturer. During one of her lecture tours in the United States she had a fall, resulting in a broken arm, and from the shock she never recovered. The work which she has left behind her is so valuable as to make her name always one to be remembered by the literary and scientific world with gratitude.

* * *

Perhaps the readers of THE AMERICAN FARMER would like to know something of a writer who is a favorite in the United States as well as in England, of which country she is a native. This author is Jean Ingelow, and her name is a household word in all English speaking countries. She was born in Boston, Lincolnshire, the eldest of five daughters. Her childhood was a bright and joyous one in the beautiful old ancestral home that was so full of family associations.

As a young girl, Miss Ingelow was extremely shy and sensitive; that she did not early recover somewhat from this characteristic was due perhaps to the fact that her education was conducted entirely at home by her mother and by masters, as is often the case with English families. Her mother had the strongest influence over this daughter, and its traces are plainly seen in many of the poems which have so charmed their thousands of readers.

Very early her talent showed itself in the carrying on with her brothers and sisters of a little magazine in which her poetic genius thus early found play. Later she wrote a number of short stories and sent them to a magazine over the signature of "Orris." These were accepted and a request made for more of the same sort. This was very encouraging, and when her poems were submitted to a publisher, and he at once accepted them and brought them out in a little volume, it was a matter of great pride to the young members of her family. Of this first book, during the first year four editions of 1,000 copies each were sold, and she at once became famous. This volume has been republished so often that it has now reached its 26th edition. From this time the way was easy. Her work always found a ready market, and she has gone on writing poems and stories which have always found favor with the public and endeared her to the hearts of her readers. Miss Ingelow lives a very quiet life in her home in London. She has traveled much and spends the Winter on the continent whenever she finds the London climate injurious to her health.

Through all of Miss Ingelow's prose works, her short stories and novels alike, a poetic vein is always distinctly visible. She gives most excellent descriptions of scenery, while all incidents are related in the most graphic language. No one need expect ever to find anything in Jean Ingelow's works that is in any sense suggestive of evil; on the contrary, while they deal with real life in a strong and dramatic manner, her work is full of purity and in the highest degree bright and wholesome and sympathetic. Many will remember her through her first novel, "Off the Skelligs," even if they were not attracted by her poems.

* * *

While in Boston recently I had the pleasure of seeing Lucy Stone, whose name all women should hold in reverence. Beautiful, indeed, is she in these later years of her life—more beautiful even than in those earlier ones when she took up a most unpopular cause and labored with all of the power of a strong intellect and a warm heart. Always a gentlewoman under all circumstances, no matter how difficult, and, I may say, how exasperating, she held the respect of all who came within the sphere of her personal influences.

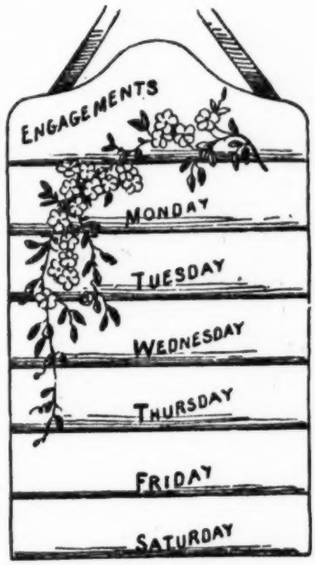
When I saw her sitting at her desk in the beautiful headquarters of the Boston Woman's Suffrage Society, her face calm and serene and peaceful, yet full of enduring strength, I thought of the contrast to those early days when to espouse and work for this cause was to win not only the ridicule of men, but the opprobrium of women themselves. She has lived to see a wonderful change, and I trust before she lays down the physical with which she has labored so nobly she may see the object to which she has devoted her life triumphant.

Her daughter, Alice Stone Blockwell, is a daughter worthy of her mother. Strong in intellect, self-sacrificing in impulse, sweet and womanly in nature, she is doing splendid work for the advancement of her sex. I did not see her, but if she is like dear Lucy Stone, she is as attractive in person and manner as she is capable.

WORK FOR BUSY FINGERS.

How to Prepare for Christmas-Giving.

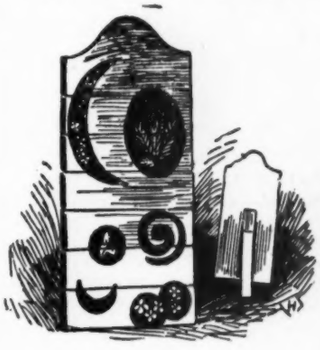
The holidays are almost here, and in the homes everywhere there are whispered consultations, retirements into the seclusion of the chamber, locked drawers, and all of the other well-known signs of the coming gift-giving. Older people, as well as the youngsters, look forward with pleased anticipations, for they are sure that Love will have stirred the thought to a memory of individual tastes, and the result will be something that will fit the desires as nearly as purse, time, and strength will allow.



ENGAGEMENT POCKETS.

In order to help the members of the farmer's household in this preparation, descriptions of various articles are here given which will show the way of making. Taste and ingenuity may be used to vary these in the way of coloring and material as much as the maker wishes.

A very pretty present, and one that is also quite acceptable, is the



PHOTOGRAPH HOLDER.

ENGAGEMENT POCKETS,

which are arranged so that cards, notes, etc., belonging to different days in the week, and denoting some engagement, may be kept separate from each other.

Cut out a foundation from cardboard 18 inches long and 10 inches wide. Cover this smoothly with white linen or white canvas duck, overseaming it around the edge. Make six pockets the same way, cutting the pieces of cardboard 10 inches wide and three inches deep. Let each one overlap the other about an inch when they are overseamed to the foundation at the sides, and tack them slightly

across the bottom. Put on the lettering with gold paint, and paint the spray with tapestry dyes.

Another way to make this is to use pretty colored silks, having the foundation of one color and each of the pockets of a different one, or taking the same color in its different shades. Use ribbon or cord to hang it up by.

In a somewhat similar fashion is made a

RECEPTACLE FOR PHOTOGRAPHS.

Take a piece of cardboard 10 by 18 inches, and also six strips, each two by 10 inches, to form the pockets. Cover the top of the board with a piece of chamois, using mucilage to apply it, allowing a diameter of eight inches from the center of the top to where the first strip covers it and leaving an edge to turn under the back at the top and sides; then cover the strips with sections of the chamois, each three and a half by 12 inches in size. Place a strip exactly in the center of the section of chamois, and one-half inch from the top, sticking it to the board; the remaining one-half inch should be fastened to the wrong side of the board. Cover each of the remaining strips in the same manner. The first strip is then placed on the foundation board exactly six inches from the top, and the pieces of chamois extending beyond the ends are secured with mucilage to the back, while the remaining inch beyond the bottom of the strip is made fast in the same way to the foundation. The second strip is placed directly under the first and fastened in the same manner. The last strip is turned up on the back and fastened there. Cut away the pieces of chamois at the back so that two or more thicknesses will not come together. Over the back stick another form of thinner cardboard, exactly the same size as the original form, and attach a piece of the heavy board two by 10 inches at the back, bending it as illustrated in the small cut. Make the geometrical figures of gold or silver paint. If preferred, bunches of flowers may be painted on it instead of the geometrical figures.

Then there are

SOFA PILLOWS.

And the more of these you have the more in style you are. Indeed, I heard one lady say that her ambition was to place 16 upon a large couch, which formed a feature of her sitting-room. Here is one she had.

A square pillow was first covered with salmon pink silk. The cover was made considerably longer and wider than the pillow. After it was put in and the end sewed up with a blind stitch, the cover was gathered down the center of each side and tacked down, which left the silk in the form of a puff. Over this was a band of white linen which was embroidered in colors, or it can be painted with the tapestry dye paints that will bear washing. This band was made closed and a little smaller than the pillow itself, but it could easily be put on and off by compressing the pillow.

Another one was of entirely different shape, and, as is seen by the description, of different coloring, contrasting prettily, however, with the first in every way.

Make a down pillow of the shape seen in the plate and cover with light blue corded silk. Embroider the pointed ends with sprays of flowers in pink, olive, and blue filoselle, and outline with gold thread. Across the center of the pillow have a broad stripe of olive plush. Outline the sides of the plush and all around the edges of a pillow with a heavy cord made of pink and olive silk, twisted with gold cord. Twist the cord in loops at the corners, and make a handle of it at one end of the flush, as seen in the plate.

A third was made to look like this illustration.

SOFA PILLOWS.

Cover a down pillow with cream-colored silk. For the center cut a broad band of terra-cotta silk with a wide fancy-stitched hem at the edges. Draw a pretty design on the silk and cut it out as in Sorrento embroidery. Under this lay a band of light blue silk and follow the edges of the design with gold braid. The underlying silk may be cut out in places as in the plate and fill in with a darning stitch. In the edges of terra-cotta band is worked eyelets, through which narrow ribbon is laced over the sides of the cushion and tied in bunches of loops and ends at opposite corners, the ends being tipped with tassels. Instead of drawing the design it would be better to have it stamped, and then it must be cut out very carefully.

Something which is easily made is a little

HANGING PINCUSHION

to hang by the side of the mirror upon the dressing case, which is sometimes very convenient. It is pretty when made of two lengths of No. 12 ribbon of different colors. They should be nine inches long and stuffed with sawdust to within two inches of the top. Tie around it firmly a string to keep the sawdust in place, and over this a ribbon, leaving a loop long enough to hang it upon the gas fixture or a tack. Tie a pretty bow and ends at the top of the cushion. If one likes a motto may be written with gilt upon either side of the cushion. In that case there should be stuck in a row of pins on each side.

HANGING PINCUSHION.

WORK BAG.

Many people like a work bag, and for those who do here is one that is pretty. Make the lower part of silver-green plush lined with blue silk. It can be cut of any size desired, but of the proportions seen in the plate. Embroider the plush with light-blue flowers and outline with gold thread. Border the edge of the plush with either gold or blue cord. The upper part is made of cream-colored taffeta silk. Make a drawing string of the gold cord, and the handle of cord still heavier, starting at the joining of the plush and silk.

ENGLISH WALNUT SACHET.

Take two English walnuts and halve them carefully by forcing the points of scissors up the soft end. Scrape the inside perfectly clean, heat a hairpin red hot in a candle or gas jet, and with it bore two small holes opposite each other at the end of the shell; varnish with gum shellac dissolved in alcohol, and set in a warm place until perfectly dry. Make a scarlet silk bag three and a half inches square, with a hem at one end and a place for a drawing-string. Sew on the nuts at equal distances a little way above the unhemmed end; run a thread around the edge and draw it up tight and finish with a bow of scarlet satin ribbon. Form the other end into a bag by drawing a scarlet satin ribbon through the casing made below the hem. Put a small bow of the satin ribbon at the top of each shell. Fill the bag with cotton wool sprinkled thickly with sachet powder.

SHAVING PAPER CASE.

Take a grape leaf and cut out two pieces of cardboard the shape of the leaf. Cover these pieces with green silk, and on the outside of each in outline stitch with green embroidery silk make the veins. Get a half dozen sheets of tissue paper, blue, red, white, green, and yellow, fold them over four or eight times, according to the size of the leaf, and cut them out the shape of the leaf, then fasten them between the covers. Put a bow and loop of green satin ribbon at the stem end of the leaf to suspend it.

For the Home Table.

CHOCOLATE PIE.

Four tablespoonfuls of grated chocolate, one pint of boiling water; let simmer a few minutes. Beat together the yolks of two eggs, two tablespoonfuls of cornstarch, six tablespoonfuls of sugar, and stir into the boiling water and chocolate. Let it boil until it is thick like custard. Flavor to taste. Make an under crust and bake it, then fill with the cooked chocolate. Beat the whites of the eggs to a stiff froth, add a little powdered sugar, spread over the top and brown slightly.

MAYONNAISE DRESSING.

Mix one even teaspoonful each of mustard and salt, with one and a half teaspoonful of vinegar. To this add the yolk of one egg. Beat well together and add nearly half a pint of salad oil.

CELERY SALAD.

Separate the stalks of four heads of celery, cut in pieces an inch long and pour over it half a pint of mayonnaise dressing.

APPLE SALAD.

One quart of steamed apples rubbed through a sieve, six tablespoons of salad oil or melted butter, salt and pepper to taste, one teaspoon made mustard, and one teaspoon sugar. Serve cold.

LETTUCE AND HAM SALAD.

Chop fine one slice cold boiled ham and cut up one head of lettuce. Serve with the following dressing: Mix together thoroughly one-fourth cupful of salad oil or melted butter, one-fourth teaspoon of pepper, one teaspoon of made mustard, one-half cupful of vinegar, and salt to season.

SHEEP AND WOOL.

Shearings.

A pure-bred sheep is a machine to convert grass and grain into mutton, wool, and better lambs than the parents were.

An esteemed exchange says: "A scrub is an animal that wastes food." That is right; but the animal was made a scrub by a scrub man that thought food was wasted by giving it to a pure-bred animal.

C. D. Hudson, the heavy sheep feeder of Marshall County, Mo., has gone to Wyoming to purchase 25,000 to 30,000 wethers. He finds by experience that Northern sheep feed best. He thinks the prospects of making money by feeding mutton sheep is as good to-day as they ever were.

"Sheep don't pay some folks." No, indeed; nor can some folks make anything pay. Why? Because they don't know how. They fail at everything, and then try sheep, thinking they can live on nothing; they are born failures. You would expect them to fail if you saw how they did things.

Mr. L. B. Townsend, the Secretary of the American Rambouillet Sheep Breeders' Association, informs us that the demand has been so great on them for rams that there is not a yearling (or older) ram in the State of Michigan for sale, and that quite a percentage of their ram lambs has been sold.

The favorable influences of climate in wool growing have not been duly considered by those who raise sheep in the Northern States. If it were not for expensive preparations and food supplies for the flock during a feeding season of from four to six or six and a half months of the year, it would seem that climate was of trifling importance; that wool could be grown as cheaply in Canada as in Australia.

THE AMERICAN FARMER has all the time been asking the sheep readers to cull—select out the unprofitable sheep of the flock and sell them. If we have not made the point as plain as can be, we wish now to say: Do not send them to market in poor condition; fatten them to a finish and sell them. We do not wish to teach anybody to sell sheep in thin, inferior order, as such sheep do not bring what they are worth. To be sure, thin sheep always sell, for there are men hunting for snap bargains. They buy, fatten, and return them to the market in better shape and make money by it; but we want the sheep growers to do this. The speculators can take care of themselves without us.

The Sheep Breeder and Wool Grower complains editorially that "Uncle Jerry Rusk's foot-and-mouth scare, which was largely in his eye," called for certain restrictions upon importations of breeding stock from England. It believes that at least 50 per cent. of the usual number of sheep imported were shut out, and that sheep breeding suffered by the fact that home-bred stock had to be used to serve the flocks. Suppose Secretary Rusk had not guarded our flocks against the foot-and-mouth disease, which by official authority was admitted to exist in England, and suppose our flocks had become affected, what would our contemporary have said? It is well to be consistent, and "praise the bridge that carries us softly over." If home-bred rams of British mutton breeds are not good enough to use, for pity's sake what have we been doing all these years, and when shall we be able to depend upon our own resources?

Until recently there was no demand for mutton, in the form of lamb, outside of cities and the more wealthy towns, but now wherever cultivated people of means are found lamb is wanted. Country people formerly ate hog meat, partly as a necessity and perhaps of choice; but more recent observations among the better-living farmers show that a change has come even here. The farmhouse menu compares favorably with the most luxurious city livers. The number of lambs consumed on farms has not been reported, but it would be quite considerable. Mutton has long been a favorite in country homes. Latterly the more fastidious country people have sent the well fatted old sheep to market instead of consuming them, and kept the best young sheep for home eating. Summer resorts, sanitariums, country hotels, and boarding houses consume large quantities of the best mutton, and pay good prices to the home producers.

The age of sheep is ordinarily shown by the teeth, though this is not always reliable, since it is found that feeding varies the development very much. The teeth indicates development to a certainty. At about a month old the lamb possesses eight front teeth in the lower jaw; these are temporary or milk teeth. If the sheep is poorly fed or kept in moderate condition the center pair of teeth are shed at about one year old and are replaced by two large and permanent teeth; at about two years old the next two teeth are shed and two large teeth are acquired; at three years a third pair, and at four years a fourth pair, when the animal is said to have a full mouth. Exceptions are numerous and widely varied. I have seen a two-year-old with a lamb's mouth, and again I have seen a two-year-old with a four-year-old's mouth. Different breeds of sheep show variations and are accounted for by the time at which maturity is reached.

Transfer List of the Dorset Horn Sheep-Breeders' Association.

No. 1673—Chas. I. Allen, Terryville, Conn., to Geo. E. Morey, Bloomfield, Conn.

No. 1672—W. E. Kinsey, Angola, Ind., to Geo. Omstead, Plato, Ind.

No. 1651—W. C. Kinie, Waterloo, N. Y., to H. K. Givens, Fayette, Mo.

No. 1478—Jas. L. Henderson & Son, Washington, Pa., to Geo. A. Martin, Short Creek, O.

No. 1438—Jas. L. Henderson & Son, Washington, Pa., to L. A. Webster, Whiting, Vt.

Nos. 1663, 1664, 1665, 1668—Geo. E. Jones, Litchfield, Conn., to G. E. Aldrich, Mattituck, Long Island, N. Y.

No. 1438—Jas. S. Buchanan & Son, Hickory, Pa., to Jas. L. Henderson & Son, Washington, Pa.

No. 1121—R. Stuyvesant, Allamuchy, N. J., to William Patten, Perry City, N. Y.

No. 1123—R. Stuyvesant, Allamuche, N. J., to V. A. Wilder, Warwick, N. Y.

No. 1120—R. Stuyvesant, Allamuchy, N. J., to Ed. J. Horton, Lock, N. Y.—M. A. COOPER, Secretary, Washington, Pa.

The Origin of Sheep Raising in Australia.

No country is so interesting from a sheep and wool standpoint as Australia. The history of the sheep industry in Australia is not hidden by mystery and tradition, as with the older countries of the world. The beginning of wool growing in Australia was an accidental matter, but the most intelligent view was taken of the natural facilities of the country for growing wool, and wise measures inaugurated that led to the most perfect development of the sheep and wool industry on a large scale.

The fact that the soil, climate, and indigenous herbage of Australia might have gone for naught had it not been for the keen perception of Capt. Macarthur, who saw how admirably adapted the country was for sustaining animal life. Hitherto the suitability of the land as a feeding ground for flock and herds had not been apprehended. The pioneer experiments of Capt. Macarthur demonstrated beyond a doubt that nature favored the production of a superior quality of wool, unsurpassed by that of any other part of the world. The beginning of the sheep industry was in New South Wales, the parent colony in Australia. It was a humble beginning, without the least expectations of the wonderful results which followed. The whole stock of the community which went out with Capt. Phillips comprised only one bull, for cows, one calf, one stallion, three mares, three foals, 29 sheep, 12 pigs, and a few goats. Although the whole flocks and herds found in Australia are not sprung from original animals introduced, it will be seen how small was the business of stock raising when first attempted in the country. No systematic record seems to have been kept of the importations in the early days of the settlement, but it appears that between the period of Gov. Phillips's landing and the year 1800 there were slight importations of sheep from India and China. The sheep from Bengal were introduced for food, but, as it was found their fleeces changed from the coarsest hair to wool without any crossing or breeding, it was determined to follow up the favorable indications of nature in a vigilant, prudent manner and test the possibilities more fully.

The first fine wooled sheep for Australia were obtained from Cape Colony by Capt. Macarthur in 1797. This importation consisted of 29 head of merinos. So satisfactory was this venture that Capt. Macarthur obtained a lot of the George III. flock of merinos from England. These sheep he found were nearly equal to the merinos he had formerly obtained at the Cape of Good Hope.

This was only a part of the real service done for Australian wool growing by this wise, earnest man. He sought every means of securing a market for Australian fleeces; of gaining the recognition of the superior merits of the wools grown by them from woolen manufacturers in Europe and America, and succeeded in establishing the reputation of the wool of the new continent.

New Zealand.

The conditions are highly favorable for sheep raising in New Zealand. Only one-fifth of the island is fit for general agriculture. The timber has been cut away to favor the pastures, which are among the finest in the world. The sheep used are mainly Leicester and merino crossed. This gives a long, highly-finished fiber, which is in great favor with manufacturers of certain high-priced fabrics. Until the frozen meat trade was inaugurated in New Zealand the sheep industry was much depressed. Although 14,000 miles separate New Zealand and England, the English market receives regular and large consignments of their mutton, which is pronounced by experts as good. Were it not for this trade New Zealand would be overstocked with sheep. It is mainly the cheapness of fat sheep stock that enables the meat dealers to handle this trade. The price obtained by the growers is very little, but sheep are easily and cheaply raised in New Zealand.

THE LINCOLN SHEEP.

A Breed Unequaled for Its Superior Quality of Fleece.

This is one of the long-wooled breeds of sheep which belong peculiarly to the eastern side of England. These sheep are peculiarly adapted to low, rich marsh or fern lands of Lincolnshire, from which County they receive their name. More than 100 years ago there was an established breed of sheep in Lincolnshire. A description of these sheep in their original or ancient form would be: "These sheep stand on high and bony legs. They have smaller faces than the Romney Marsh sheep, and are altogether lighter in flesh. The carcass is large and coarse, the length from the head to tail considerable, measuring in some instances four feet six or seven inches. This great length sometimes produces a hollowness of the back. The ribs are flattish and not covered very thickly with flesh. The belly is deep, like the Romney Marsh sheep, and the shoulders so forward as almost to hide the breast. The neck is thick and large, from which hangs a deep and flabby dewlap. The skin is thick and the flesh often grained. The hind quarters, like those of the Romneys, are full and flat, the tendency being to lay on fat at the rumps. The legs are fleshy and deep. The whole animal appears to be of a somewhat unshapely form, taking the standard of connoisseur taste as a criterion; but when the valued wool covers the animal, the whole of its imperfections are hid. He is one living square of wool, ranging from 15 to 18 inches in length, and more wool is clipped from the Lincolnshire sheep than from any English sheep whatever. The fleece varies from the enormous weight of 12 to 14 pounds."

This breed, it will be suggested, was not up to the standard of carcass that would please the English farmer three-quarters of a century ago. The Leicester sheep was therefore the breed to modify Lincoln sheep, as it had nearly every breed of sheep, especially lowland sheep, in England. As with other breeds crossed with the Leicester, some disappointments were experienced for a long time. The English farmer is always slow to adopt new things, and this was true especially in new breeds of sheep; but in time the new profits realized by the Leicester cross convinced them that this modification was necessary and right. It was a long time before the Royal Agricultural Society of England would grant the Lincolns a separate class in their shows, but finally yielded in 1862. Even then their reputation did not extend beyond their native County to the extent that would be expected.

The Lincoln sheep, like the Leicester, crosses well with almost any breed. The merino has been made a more valuable sheep in some districts in which food supplies are abundant of Australasia by a Lincoln cross. The Leicester cross refined the breed very considerably in shortness of the legs, symmetry, and in its early maturity and kindly feeding qualities, they are likewise very prolific. "About one-third of the ewes produce pairs, triplets are frequent, and fours are not uncommon." Their fleeces range from 12 to 25 pounds, and even larger fleeces are reported. The especial popularity of the wool is due to its long, fine, and lustrous quality, which is unequaled by any other breed. This also gives it favor with Australian and New Zealand sheep breeders. Just why this is so of the wool of this breed of sheep may be as much due to the character of the feed as anything else, since this is lost when submitted to very decided changes of pasturage.

The Lincoln sheep in the United States have many admirers, who have organized and have a "Flock Book of the American Breeders' Association." A resolution passed at the last meeting of the Dominion (Ontario) Sheep Breeders' Association: "That the Dominion Sheep Breeders' Association think it is desireable that the breeders of Lincoln sheep start a record for the Dominion of Canada."

The Lincoln sheep are more difficult to satisfy in this country than the smaller breeds of sheep. They belong to low, fertile, and rather moist soils, and only on such conditions can they give expected results.

The Black-Faced Sheep.

The black-faced sheep is considered to be a native of the highlands of Scotland. It is indigenous to the mountainous regions of Lancaster, Westmoreland, many parts of Northumberland, and the whole of Scotland. They possess a larger habitat than any other breed of sheep in the British Isles.

The rams have large, beautiful horns, while the ewes do not, as a rule. The covering of these sheep is very complete, and the wool is open, long, and rather shaggy, especially in the less improved families. Formerly, these sheep were classed among the middle wooled breeds, but as now met with, they often have very long wool. They are a hardy, active, self-reliant sheep, eminently suited to the situation. They resist the severity of extreme weather with wonderful unanimity. The instincts of these animals and their fondness for their homes has been observed with astonishment. When removed to distant places they have been known to abandon their companions and return to the old range, often when rivers had to be crossed. A ewe that has lambed at a certain place will return to the same spot next year, though it be miles away.

These rugged sheep subsist upon the most scanty and, to other breeds of sheep, most objectionable fare.

Since some system of improved agriculture has been practiced it is found that the black-faced sheep have undergone many modifications. The weight of carcass has increased from seven to eight pounds per quarter to 14 to 18 pounds. The fleeces are longer, heavier, and better. The age of maturity has changed from four or five years to two or three. The disposition to take on fat is much more satisfactory. The quality of mutton is first-class on its native pastures, but when artificial food and a forcing system is resorted to the flesh is neither so fine in the grain nor so good in the flavor.

The improvement of black-faced sheep has been most successful when a rigid system of selection has been resorted to. The crossing with other breeds, either the Cheviot or Leicester, has been quite unsatisfactory. The produce has been found too tender for the situation.

The introduction of steam navigation, introducing more progressive methods of farming and the opportunity of transporting sheep to markets, and to feeders from arable lands, has given more spirit to the breeding of these sheep. The Falkirk trysts, or fairs, are attended by sheep raisers and farmers from the lower districts. As many as 80,000 and 90,000 sheep are transferred at these annual gatherings. It is found that these semi-wild animals take readily to artificial feeds and rapidly take on flesh.

There is no more interesting breed of sheep in England than these mountain, half-wild, independent creatures. A few have been introduced into this country, and when acclimated will no doubt be reported. They are in splendid hands, and may be expected to gain a place in the rougher and mountainous parts of our country.

Mutton the Most Sanitary Food.

Sanitary conditions are affected by food and clothing. The Hon. James A. Grinnell, of Massachusetts, in an address before the State Board of Agriculture, Dec. 2, 1891, called attention to the remarkable experiments conducted by Dr. Beaumont more than 50 years ago, with his conclusions recognized as authority now, which may be summarized: Mutton is more digestible than any other meat generally in use, assimilates more readily in the human organism, and is consequently more nutritious. English chemists have shown the comparative loss of soluble matter—fat, juices, and water—in cooking 100 pounds of beef and of mutton, as follows:

	Boiling. Pounds.	Roasting. Pounds.	Baking. Pounds.
Beef loses	26¼	32	30
Mutton loses	21	24	"

Thus, a leg of mutton and beef each costing, raw, 15 cents per pound, when cooked would cost, beef, boiled, 19½ cents; mutton, 18½ cents. Sirloin of beef costing, raw, 16½ cents, cost, roasted, 24 cents, while a leg of mutton at 15 cents would cost, roasted, only 22 cents.

The Last Chance at Burs, Etc.

THE AMERICAN FARMER called the attention of sheep raisers who would keep their fleeces clean and sound to some timely work in destroying burdock, cockle burs, sand burs, Spanish needles, etc., that spoil the fleeces of sheep. If our admonitions were followed a good work has been done; but it is possible that some did not attend to cutting the plants at the right time, or, as is quite possible, a great many plants escaped attention and have matured their seeds. It is advised that a close investigation of all fields and pastures be made now, as much of the damage may be averted. If the fields are too greatly occupied by burs to be gathered and burned they may be mowed and burned, or by harrowing the field severely backward and forward a few times the burs will be broken from the plants, fall on the ground, and are less liable to get into the wool. The damaged pieces of burry fleeces will justify the expenditure of time and labor as here indicated. Attend to this before the sheep are turned into the fields.

The Hampshire Down Beeeders' Association.

EDITOR AMERICAN FARMER: The Hampshire Down Sheep Breeders' Association of America held its third annual meeting in Chicago on Nov. 17. This Association was organized in Chicago, Nov. 14, 1889, has a membership of 62 persons located in 13 States and Canada, and now has about 2,000 animals recorded. The report of the Treasurer shows a balance of $600 above all expenses. The election of officers resulted in the choice of the former board, viz., Mr. James Wood, Mount Kisco, N. Y., *President;* Messrs. J. W. Gains, Lowell, Wis.; J. H. Taft, Mendon, Mich.; Hiram Eoster, Deputy, Ind., and N. I. Bowditch, Framingham, Mass., *Vice-Presidents;* Jno. I. Gordon, Mercer, Pa., *Secretary and Treasurer.* This Association one year ago having offered $300 in prizes to American bred Hampshires exhibited at the Columbian Exposition, and the English Hampshire Association having in like manner offered $150 in two prizes, a resolution was adopted to the effect that these prizes are open to such sheep only as have been bred in the United States or Canada, and have been recorded in the American registry. The Secretary was directed to include in Vol. 2 of the Flock Record all pedigrees received prior to Jan. 1, 1893, and publish same as soon thereafter as possible. The fourth annual meeting will be held on Columbian Exposition grounds, Thursday, Oct. 12, 1893, at 2 p. m.—G. I. J.

Prof. Craig on Mutton Raising.

"Sheep to be managed rightly must come in contact with nature. Sheep are more easily influenced by environments than any other domestic animals. By feed and the circumstances surrounding them sheep will be so altered in a few generations as not to bear any resemblance to their progenitors.

"It will hardly pay in Wisconsin to raise sheep for wool, but it will pay to raise them for mutton. There is another thing to be considered. In growing mutton sheep you are at the same time growing wool that will bring the best price to-day, and this wool is the medium clothing. The cloth worn by the common people is made largely from this class of wool. Then, too, this class of wool cannot be produced in any other country so readily and cheaply as it can in this country. So, in going into mutton sheep we attain both of these ends. We make mutton for three cents per pound and sell it for six cents per pound, which of itself leaves a good margin of profit, and the wool will be extra.

"One way to establish a flock is to start with common sheep and grade up. This will depend much on the man who manages them. Buy a good ram and breed up slowly and carefully. In using a pure-bred animal you get all the advantages of the long and continuous breeding of somebody else. In the breeding of sheep you will get more of the benefits of other breeder's work than in the breeding of other farm animals."

Utilize the surplus pumpkins as food for the hogs, especially if you are now preparing them for market. Boil and mix with wheat bran and corn.

THE APIARY.

Hummings.

BY J. W. TEFFT.

A new variety of beekeepers is needed more than a new variety of bees.

Activity devoted to the useful honey bee is a good definition of happiness.

The devil does not understand a stingy, selfish beekeeper, but he likes him.

The nearer a man gets to his bees the less reason there is for his being afraid of them.

The truly scientific beekeeper is modest. He is aware how little is positively known.

He who tries to solve all the problems of beekeeping will find it takes a little longer than a lifetime.

Life is long enough for our heartaches and differences, but not long enough for our love for the honey bee.

If brains could be purchased as cheap as oysters, some editors of bee trade papers would need a 10-quart pail full.

The beekeeper who uses religion as a cloak will not need anything so heavy as a cloak to keep himself warm in the next world.

A mule would rather hear himself bray than to listen to any music from others. A good many beekeepers are built like him.

Nothing great is achieved in beekeeping without the severest discipline of mind and heart, and nothing is well done that is done easily.

The last half of a bee controversy generally consists in concealing the fact that neither party knew just precisely what he was talking about.

Knowledge of the apiary must be gained by ourselves. Others may supply us with facts, but results must be the work of our own experience.

It is a well known fact that the honey producer is supported by his bees and the supply dealer is supported by the producer, yet the supply men usually occupy the front seats.

A well grounded conceit is not altogether objectionable in any beekeeper. The trouble is that the average editor of bee trade papers is apt to think that nobody's conceit is well grounded but his own.

Bee culture demands sufficient privacy to preserve individuality, and sufficient publicity to do all the good that is possible. He who succeeds in combining the two secures some of the most necessary elements of a valuable, noble life.

In apiculture, out of every $10 given to a man who commands high pay, one dollar is for what he does and the other nine is for what he knows. It is knowledge which costs and is valuable. When salaries go into four or five figures, knowing how is for what such salaries are paid, and few there are who have the natural ability to earn them.

An ignorant blockhead put in charge of an apiary can ruin it in one season. Neglect will do it. Misapplied manipulation is sometimes worse, especially where one practices the shaking out function of bees from the combs in front of the hive. This is a shabby, cruel practice. Nine times out of 10 the queens will be lost and this ruins the colony. There are lots of such beekeepers in this world.

The proverb says all knowledge is power, but does not designate what kind of power, so we must take it to mean any kind of power. Hence, if all knowledge the world has concerning the religious pirate of apiculture inventors could be compressed and an oil extracted therefrom, one drop of that oil, if let fall on the pirate, would have the power of three tons of dynamite.

Foul Brood.

Not long ago foul brood was a mystery without a name. Nothing was known about it, not even its destructive character. All manner of theories were advanced concerning it, and every kind of useless remedy resorted to. The prevailing idea was to dose the bees in order that they might hatch strong and healthy brood. It would be just as effectual to kill rats by pouring medicine down a rat hole.

Bees try hard to keep their homes clean, but they are unable to thoroughly clean and disinfect a polluted cell. After the grub matter has turned to a hard gum and sticking like glue to the sides of the cells, it is impossible for the bees to remove it, though they always try to do it.

It requires the closest observance to detect the black, adhesive gum of foul brood in these "cleaned up" cells, but it may often be found in them, and also new eggs or small quantities of honey. Such honey when removed from the tainted cells will contain foul brood matter.

Of course, such honey will help to spread the germs through other apiaries, and no medicine will have the power to ward it off or cure it. The only thing to do is to transfer the bees to a clean abode.

Some of the symptoms of this disease are many small swarms, generally queenless, few young bees, and little industry. A disordered state of the brood comb, empty and capped cells, larvæ and newly-laid eggs, with neither regularity nor system.

Sometimes this glue-like foul brood matter may be found by probing the cells. It is at first light in color, but changes soon to dark brown.

Bees always uncap foul cells to clean them out, and the foul brood may often be seen by holding the brood comb in a strong light.

The disease is infectious rather than contagious. It is not so terrible as some would have us believe, nor is it so hard to destroy. It is not even necessary to burn the old hives and buy new ones of interested dealers. One way of transferring bees is to set the old hives in the sun until the adhering wax is soft; then scrape it off cleanly. If a few ounces of hay be fired and the hives turned over it, a dense smoke will be formed which will entirely disinfect them. They are then ready to receive the bees to be transferred.

Beekeepers and Progress.

Mr. F. O. Blair, in his address before the Colorado State Beekeepers' Association, says: "Beekeepers the world over are noted for their benevolent spirit, and their disposition to aid each other. They are ready always to impart all the knowledge they possess to one who needs it, and to lend a helping hand to all who desire it. Luxuriating in delicious sweets they take in nature's own sweetness themselves until they become transformed in spirit and temper to that which is lovely and loving. * * *

"The progress which has been made in the methods of beekeeping during the last half century, and especially the last 25 years, has been simply amazing. Formerly only a few colonies were kept by anyone, while now certain individuals possess them by thousands, and this is made possible by modern inventions. In other days bees were consigned to fire and brimstone in order that they might be despoiled of the fruits of their labors; and when the contents of the hives were taken a large portion was usually a disgusting mass of old combs, beebread, and crushed honey-smeared dead bees. Now the bees are permitted to still live and labor, while the pure, transparent product from nature's floral laboratory is removed from the comb, unmixed with any foreign substance, by an extractor; or it is obtained in dainty little pound packages stored away with skill and art by the industrious workers for the benefit of their owners. These inventions have revolutionized the bee and honey business, furnished a marketable article which there is a great and growing demand for, and given profitable employment to many persons.

HOW?

Some Hints on the Way to Succeed.

EDITOR AMERICAN FARMER: I see Mr. Sinclair wants to know how I obtain so much honey and of a better quality than the rest of the boys.

In beekeeping, success hinges upon the man and his surroundings. Brains here are of the most importance as elsewhere. You cannot afford to get the impression that you know all about bees, and you cannot afford to keep bees at all unless you know a good deal about them. No business requires greater care than apiculture. Therefore, Sinclair, pass by no information as trivial, unless you have studied it yourself. Take away the honey as fast as finished if you want white comb honey. Be prepared to meet difficulties, but be hopeful and ambitious, and stick to it. Produce better honey and bees than anyone else, find the best market, sell for cash and you will succeed.

Second. One of the greatest mistakes made by a majority of us at the outset is our manner of buying our beehives. There is an everlasting hunt for cheap beehives, and how often we see beekeepers who would not plant poor seeds of grain at any price, but who will hunt the local factories fer cheap hives and in the end some distant manufacturer will make him the price he wants and fill his order with cheap beehives that a smart beekeeper would not use if he could get a bonus for so doing.

Third. Bees are often the most abused thing on the farm, because they are not understood. They are left to live in old box and simplicity hives in an out of the way place, and left to shift for themselves. They are considered a nuisance on the place and are expected to gather honey, and a good deal of it, breed, swarm, and pay a profit without care. It can't be done. It is not the well-bred bee that thrives with little care, but the one that receives care that pays. A good breed well cared for permits the beekeeper to convert his labor into profit.—J. W. TEFFT, Buffalo, N. Y.

It has been shown that electricity as a means of embedding wire into honey-comb foundation is both practicable and economical.

THE DAIRY.

Skimmings.

The successful dairyman keeps no cows but those of good age.

Ensilage fed with a grain ration makes the kind of butter for which the public are willing to pay for.

It is the opinion of a good many dairymen that ensilage is just as good for milk and butter as the best pasturage.

A cow cannot make good milk from one kind of feed. There is not the material in it that constitutes the proper qualities for milk.

We have seen it stated that the best dairy herd in the country would soon degenerate into scrubs if they were fed scrub rations by a scrub dairyman.

If a cow is unfit for the dairy do not sell her immediately. Keep her for a while and feed heavy for beef, and the difference in the price will justify the extra trouble and expense.

The trouble with two-thirds of our dairymen is that they do not know what the income from their cows is, and neither do they have any idea of the yearly cost of keeping a cow.

Figures do not lie, is an old saying, and nowhere else is this so true as in the dairy. Surprising results would undoubtedly be obtained if some men who keep a herd would use these figures.

The scrub cow may be due to a large number of failures in the dairyman's business, but we have seen a good many cases where the scrub was not the cause. Again, we have seen a dairy composed almost entirely of scrubs which netted its owner quite a snug sum yearly. The fault is not always in the cows, but very often in the man at the head.

The secret of success is given by one who knows. He says if butter making or cream production is the object in view it is best to select cows which will produce large amounts of butter fats in their milk for the food consumed. If for a patron of a cheese factory cows should be selected which will give a large flow of milk, regardless of quality.

Abortion in Cows.

EDITOR AMERICAN FARMER: Will you kindly state through the columns of your paper the cause of abortion in cows; also, is there any cure for it?—JAMES HENDRICKS, Webster County, W. Va.

[Prof. Nocard, of France, has made a very careful study of this subject, and seems to establish beyond a doubt that it is due to a particular germ that infests the uterus. He has found the same germ in the lining membrane of the uterus, and also in the base of the brain of the fœtus. He explains how this is the germ which causes what is called the bellowing calf. When the animal aborts in a stable she should immediately be separated from the other animals and the stable disinfected. The fœtus and fœtal membranes should be destroyed. Burning them is the best way. For disinfection he describes a regular formula, of which carbolic acid is an important feature.—ED.]

Meeting of the American Short-Horn Breeders' Association at Chicago.

EDITOR AMERICAN FARMER: The meeting of the Stockholders 'of the American Short-Horn Breeders' Association convened at the Grand Pacific Hotel on the evening of the 16th inst., as per notice given. W. A. Harris, Linwood, Kan.; N. P. Clarke, St. Cloud, Minn., and John Hope, Brantford, Ont., were the Directors whose time expired. Messrs. Hope, Harris, and H. F. Brown, of Minneapolis, Minn., were elected for the term of three years, Mr. Clarke declining a renomination on account of other pressing business. Hon. H. H. Hinds, of Stanton, Mich., made a favorable report on securing Short-Horn cows to be tested at the Dairy School at the Columbian Exposition. He was continued as Commissioner. A motion to call a convention of Short-Horn breeders of America and Europe during the exhibit of cattle at the Columbian Exposition was unanimously carried, the exacted time to be selected hereafter. The Directors were requested to offer prizes for Short-Horn cows that may be exhibited in the Dairy School.

On the 17th inst. occurred the annual meeting of the Directors, at which time the following-named officers were selected for the ensuing year: *President*, Emory Cobb, Kankakee, Ill.; *Vice-President*, C. E. Leonard, Bell Air, Mo.; *Treasurer*, T. L. W. Harvey, Chicago; *Secretary*, J. H. Pickrell, Chicago; *Assistant Secretary*, F. M. Wade, Chicago.

Emory Cobb, H. H. Hinds, and J. H. Pickrell were empowered to classify premiums to the amount of $1,000 for cows that may be entered for the test in the Dairy School. This is in addition to the entire expense that the association assumes for the transportation, care, etc., of the cows.—P. H. J.

Pumpkins as Food.

Many farmers grow large crops of pumpkins and find quick sales for them at good prices. But we do not intend to give an account of the profit in this vegetable. We desire to call the attention of growers of it to the valuable properties which it contains as food for stock. Carrots are considered to be the best food of its kind for stock, and immediately behind it comes the pumpkin. This is sufficient, and we can readily see the value of it as a food for stock. When prices are low it is better to feed all the surplus pumpkins to the cows. The milk will not only be of a richer quality, but the quantity will be greater. To the other stock it is an agreeable food, but the result is not so plainly evident as in the case of the cows.

The Storing of Winter Apples.

Years of experience in the Wintering of apples convinces us of the hardiness of this product of the orchard.

A cellar that is exactly suited to the proper keeping of potatoes is not fit to keep apples. Potatoes must not freeze, but apples may without harm if not disturbed while frozen. The lower the temperature without actually freezing the better. They will certainly decay if kept too warm. A bit of experience may show what is meant better than can be told otherwise.

GRASS FOR SHADY PLACES.

Dactyles Glomerata Best Adapted for those Locations.

EDITOR AMERICAN FARMER: In your valuable "Questions and Answers" column will you kindly advise me what kind of grass will grow best in a shady place, where it will have little or no chance of deriving any benefit from the sun. I have vainly endeavored to grow several varieties in the shade of some cedars, and would be obliged if you could suggest some grass that would grow in this shade.—A. D. SHELDON, Ocean Springs, Miss.

[One of the best grasses for growing where the supply of sunlight is insufficient is *Dactyles glomerata*, commonly known as Orchard grass or Cocksfoot grass.

This is one of the most popular grasses of Europe, and is well known to most American farmers, especially in the Northern and Eastern States. It is a perennial of strong, rank growth, reaching an average hight of about three feet.

ORCHARD GRASS (*Dactylis glomerata*).

Of all grasses it is the most widely diffused, growing in Africa, Asia, Europe, and America. It is more highly esteemed and commended than any other grass by a larger number of farmers, which is a most decided proof of its great value and wonderful adaptation to many soils, climates, and treatments. It will grow well on any soil containing sufficient clay and not holding too much water. In very stiff land under drainage is highly advantageous to its growth. It can be mowed two or three times a year, and grows well in this country between the 29th and 48th parallels of latitude. It grows well in forests where the underbrush is well cleared off; but in this case should be seeded thickly to prevent growing in clumps.

It is admirably adapted to growing in the shade. Its only equal in this respect is the rough-stalked meadow grass, *Poa trivalis*. It is frequently found growing in luxuriance in dense old orchards, whence its common name. When young it makes excellent hay, but is not relished by cattle when allowed to become over ripe. Pastures which contain the short grass should be mowed off before the new grass starts. On the whole, orchard grass is the one to be first recommended for growing in the shade. But of course it must have some sunshine.—EDITOR AMERICAN FARMER.]

THE GARDEN.

Pluckings.

Onions have sold at high prices this Fall, and the crop was not abundant. A. Greiner says there is no kind of soil, provided it is rich, well drained, and free from stones and rubbish, that could not be made to produce a good crop of onions.

The preservation of celery depends in a measure on its bleaching in the Fall. The greener the stalks the longer it will keep in a trench. For storing the trench should be about a spade wide, long enough to store the whole crop, and as deep as the stalks are long.

Roots intended for early Summer use may be stored outside in a pit, and the whole covered with straw after the snow falls and the ground freezes. Potatoes so treated will be sweet and crisp till the last of June. Squashes may be kept in a room over the kitchen as late as May and still be sound and good.

The matter of digging and storing potatoes is comprised in these five points, says *The Country Gentleman:* 1. Harvest the crop as soon as it has ceased growing. 2. Store the tubers when perfectly clean. 3. Keep them uniformly cool. 4. Never allow freezing air to reach them. 5. Ventilate only to remove and prevent foul air.

A leading farmer of southern Minnesota who had been living on his farm for 20 years without having a good garden, was induced to give more attention to what he denominated little things; the result proved so satisfactory that he now affirms that they "live much better and cheaper since they learned to live from the garden and cellar, instead of the country store."

It is thought that both the squash and the pumpkin are natives of America, and were cultivated by the Indians in great numbers. In ancient mounds, supposed to have been built by another race before the Indians, grains of Indian corn and pumpkin seed have been found, and also pottery oramented with a molding of the vines, leaves, and tendrils of the pumpkin vine.

Soft heads of cabbage are stored by placing them in a trench about as deep and wide as the heads. They are put in roots down, and the trench under and around them is filled with earth, and the cabbage covered with it. They will become firm and hard before Spring. Mature heads are stowed in double rows, heads down, and furrows plowed up against them; the roots being covered with loose earth.

Potatoes, which nearly every family uses freely nearly the entire year, are often unhealthy, unappetizing and indigestible on account of careless handling and storing. Beets, carrots, parsnips, turnips, rutabagas, etc., are nearly always stale and wilted long before Spring, all of which might be avoided by proper care. A few boxes or barrels in which to store them, a light covering of dry sand or garden soil, and they may be kept as fresh, crisp and tender as when dug.

Cold Frames.

The cold frame is first used for cauliflower, cabbage, and lettuce for early crops. The best method of planting is to transplant from seeds sown in the open ground, though some gardeners sow the seed in the frames and thin afterward. These plants are hardy and can endure considerable cold. The main idea is not to grow them in the Winter, but to keep them dormant and so hardy that they at once start into vigorous growth when planted out early in the Spring. The most particular care should be given to ventilation. The plants do not require a warm temperature, and need considerable exposure. The soil in the frames should be rich, by mixing with good compost. Watering with a weak solution of nitrate of soda causes quick growth. Radishes, parsley, carrots, and beets for early market may be grown by means of the cold frame and bring high prices.

How the French Keep Potatoes.

France has adopted a method of preserving potatoes for the army, and preventing them from sprouting. It was devised by one Prof. Schribaux, of the National Agricultural College of that country. It is both simple and cheap, and consists of soaking the tubers 10 hours in a two per cent. solution of commercial sulphuric acid in water; that is, two parts of acid to 100 parts water. The solution seems to have no effect upon the skin, but penetrates the eyes to the depth of one-fortieth of an inch. Then they no longer have the power to sprout. They are then thoroughly dried before being stored. It is said that they will keep perfectly for a year and a half, and at the end of that time are as nutritious and healthful as when first dug. Of course, they cannot be used for planting.

Winter Planting.

Some of us who do not live too far north ought to be able to get something green from the garden nearly all the Winter. There is kale, which comes with spinach and radishes, and the cold frames will give hard-headed lettuce by Christmas. In some localities, early peas are put into the ground by January. In February the early crop of Irish potatoes and onions are transplanted or sown, and many plants are forced under glass. For the active gardener there should be no idle time.

New England's Best Potatoes.

The following are some reports sent to the New England *Farmer* as to which are the best to grow:

Windsor, Vt.: Stray Beauty is the best. —E. C. D.

Deering, Me.: Most farmers here plant the Hebrons and Early Queen for early kinds.—A. C.

East Granville, Mass.: The New Queen is the best variety about here. The Clarke No. 1 does very well.—S. P. W.

Hyde Park, Vt.: The Polaris and Early Beauty seem to take the lead, with the Beauties a little ahead. The newer varieties I don't know anything about. —C. E. D.

THE ORCHARD.

Cullings.

Two or three varieties of apple which you know to be good will bring more profit than a great diversity.

A pile of dead leaves and branches will form comfortable Winter quarters for insects. If you do not care to furnish them with lodgings do away with the rubbish.

Someone has said, and rightly, that to have healthful, fruitful trees bearing regularly is only a question of care. The right ones must be planted for the location.

It is said that grapes can be made to grow in very cold climates if they are bent and laid on the soil in November. Peach trees are laid successfully, and the grape is far more pliant.

Two crops are being demanded from the soil when you grow grass or grain in the orchard, and the chances are that neither crop will be profitable. It is well to plant trees on hillsides which do not repay cultivation.

It has been decided that it does not pay to fill vacancies in old orchards of large trees, for the trees inserted are not apt to develop into productive trees. The roots and fibers really occupy the ground where there is a seeming vacancy.

That old-time notion of orchards bearing the "even" year has no longer a foothold. Trees receiving liberal treatment will bear whenever conditions are favorable. Some trees would not bear every year under the most liberal cultivation.

The large shipments of apples of late have put the market price to rather a low figure. Returns on recent shipments have netted little more than $1.80. In New England shippers are paying $1.75. Canada is demoralizing the foreign market. There is a good crop there, and they are sending much of it over.

Maine seems to have had success with apples. We hear of a grower in North Belgrade who picked 78 bushels in nine and one-quarter hours. Another grower of Hebron has 250 trees in bearing, and 40 Russet trees with the limbs weighed to the ground with fine fruit. His Northern Spy and other varieties bear equally as well. He says that he sprayed his trees in the Spring at a cost of two cents per tree.

Delicious Pears.

The Bartlett and Seckel are the best of pears, new varieties to the contrary notwithstanding. The Bartlett originated in England. Its name was lost when it was introduced into this country, and received its present name from the man in whose garden it was grown. It is a healthy, thriving tree, and it is hardly necessary to name its excellent qualities.

The Seckel is a native pear, and was first found near Philadelphia. It has one disadvantage, of requiring six or seven years for bearing, but when it begins, it produces fruit regularly and plentifully. These two kinds, like other pears, improve in quality as the trees grow older.

The Apple Orchard.

For the success of apple growing the following points are given by a grower of experience:

First. The location should be on the highest ground; and next best, the northern slopes, never to the south; the soil underlaid with clay, and limestone subsoils, usually white oak ridges, is the best.

Second. No wind-break above the hight of a mature apple tree. There must be a free circulation of air to prevent frosts and blight.

Third. Selection of Varieties—Yellow Transparent, best early July apple; Duchess of Oldenburg, best August cooking apple; Alexander, very large October cooking and eating; Wolf River, very large October cooking and eating; St. Lawrence, Fameuse or Snow, Haas, and Wealthy are all good Fall apples. Hibernel, Longfield, Talman Sweet, Orange or Newell's Winter, Roman Stem, Golden Russet, N. W. Greening, and Willow Twig are all good Winter apples, some of them keeping until apples come again.

Fourth. Selection of Trees—Home-grown or Northern trees, four to six feet, are best, yet if I were planting largely would prefer trees not over two feet high.

Fifth. Planting—In clay soil do not dig holes deeper than the field is plowed; the roots must not stand in a hole with water; mulch thoroughly for three feet all about the tree with straw manure to protect from drouth, and do this at the time of planting.

Sixth. Shape of Tree—Have one central trunk and side branches four to eight inches apart, standing out at right angles from the trunk. If the limbs are close and upright cut them off at time of planting. If the limbs are not right, cut them all off; the tree will put out branches, and you see they do not start too thick. Lean the tree to the southwest, the winds will straighten it up.

Seventh. Protection from sun-scald, borers, rabbits, mice, and bark burst may be given by weaving eight lath with wire and encircling the tree; cut off the lath to the hight you want the top or lower branches. This protection should be put on when the tree is planted and left on Winter and Summer, as the sun in Summer and sun in Winter injures more than the cold.

Eighth. Keep the orchard fenced from all stock, plant no hoed crops for three years, and sow to clover. When the orchard gets to bearing give it a wagon load of manure for every five barrels of apples; do not expect, as in the past, an orchard can bear 20 years without food. You have starved the old orchard to death.

A New Insecticide.

The Kansas Station has tried a curious and interesting experiment. It consists of distributing diseased bugs where chinch bugs are numerous, so that they are affected by the disease and die. When the experiment was begun in 1889, these diseased bugs were placed under glass jars with healthy chinch bugs and the effects noted. They were afterward spread about among destructive insects and it is estimated that about $87,000 in crops was saved among 482 farmers.

AGRICULTURAL MATTERS.

Items Which are of Interest to Farmers.

FARM NOTES FROM A RAILROAD TRAIN.

EDITOR AMERICAN FARMER: Leaving Washington, D. C., Oct. 14, at 3:30 p. m., on the fast train for St. Louis, Mo., gave a fine opportunity to observe the country and its farming operations while passing through the really agricultural sections between the two points of the trip.

The first surprise encountered was the high farming done in Maryland, especially Montgomery County. It was a notable fact that all the corn had been cut and put in shock and the land sown in wheat. A few farmers were still sowing wheat, but the most of the wheat was up and growing beautifully. Some fields of corn were being husked out and seemed to give a good yield. The fodder was being tied up in bundles and set up again in the very neatest style.

The pastures were green and promising, though short, due to the late drouth and close cropping. Many of the farmers of that region are dairymen and ship milk into Washington City.

The fruit crop of western Maryland is worthy of notice. At Harper's Ferry peaches and apples of fine quality were sold on the platform at four for five cents. The quality was as good as the size and color indicated. That wonderful region, illustrious both historically and agriculturally, the Shenandoah Valley, seemed to have escaped the severity of the general drouth, as the crops were good and a general appearance of prosperity were seen on all sides. The pastures were fine, and all kinds of stock, especially sheep, were in splendid shape.

Here night came upon us and other than towns was hidden from view, as has always been with us while passing through the mountains of West Virginia.

Daylight came just as the bridge—that no one seems to own nor pays taxes on, the Baltimore & Ohio Railway bridge at Parkersburg—was reached.

The drouth had made sad havoc with the corn crop of eastern Ohio. Wheat was sown on corn lands after the corn had been cut and shocked. It was hard to tell whether it was the custom to put corn lands into wheat, or whether the stubble lands could not be plowed owing to the drouth and the condition of the soil due to the extreme wet of the Spring and Summer. Some fields of wheat had been clover lands turned before the dry weather set in. Certain it was that very few stubble fields had been turned. The clover seedings on these lands looked very bad, as a rule. In a few instances fallow lands had been put to wheat. As in Maryland and West Virginia, the corn crop had been put in shock to be used as roughness. The hay crop had been a short one.

Unusual complaints of grub worms in meadows, pastures, and lawns came from farmers along the line of the railway in West Virginia and Ohio. The grass roots were eaten off and the grass was killed. In some instances the sod could be removed by the rod without difficulty. Many of the farmers were inquiring what to do, and if the grub worms had come to stay. The season has been favorable for these worms, and they were reported to be in vast numbers—as thick as one to the inch when the sod was lifted.

All the farming on the line of the Baltimore & Ohio Railway seen thus far had been done in a careful, thorough manner. It was necessary to make full allowances for the excessive wetness of the early season and the dryness of the Fall. The strawstacks showed the interest farmers felt in this formerly-neglected product of the farm. All straw was carefully stacked convenient for use by stock.

The wet Spring and dry Summer and Fall was a formidable hindrance to corn raisers who occupied level and low lands. It could be seen where corn was planted early the weeds took full possession of the land, as no cultivation was possible. Where the crop was planted later and taken care of the crop was good, though in many instances damaged by dry weather. The higher rolling lands were fortunate corn lands this year. On all flat lands the crop was light.

The forwardness of all farm work across the State of Ohio indicated the interest taken in the political campaign. They were staying by their farm work and not running to rallies. It was evident, too, that Ohio farmers understood their best interests in all directions.

The lack of general prosperity on the line of railroad was evidenced in the fact that very few new buildings of any sort were being erected on farms. It was significant of the interest taken in cultivating every rod of soil that would produce crops in the vicinity of Cincinnati and other large towns in the State. This was quite in contrast with the practice of Virginia and Maryland farmers contiguous to Washington City.

Corn in western Ohio was terribly poor. Possibly, too, the frost had injured what little corn there was, as there had been quite enough to kill beans, tomatoes, etc. No Fall plowing had been done, as it was impossible.

The woods in Ohio and Indiana were touched by frost just enough to put them in most gorgeous and glorious array. The scarlet and gold of maples, gum, sassafras, dogwood, and oaks was charming to behold.

In Indiana the greatest evidence of prosperity was in the number of sawmills and the valuable character of the lumber piled in the yards near the railroad. The acreage of wheat in Indiana and across Illinois, judging from the strawstacks and area of growing wheat in sight, seemed to be much shorter than last year. A good wheat crop had been secured in southern Illinois, but otherwise the country seemed to have no agricultural resources this year. The country would seem to be misunderstood by farmers as a rule. It is a grass and fruit country, and should be used as such. Corn and wheat do well when the season suits, but misses often enough to show that it is a mistake to plow up meadows and appropriate the land to other crops. The neglect of live stock on farms, from a railroad standpoint, is quite astonishing. For miles and miles no stock could be seen. The late rains had given good pastures, but there seemed to be no stock to eat it.

The coal interests of southern Illinois has, like the fruit business, given importance to that region as a source of wealth. The "American Bottom," a tract of rich and low land on the east side of the Mississippi River extending from Alton, Ill., to some point near Chester, has always been liable to overflow when the river was high. This was the case last year, and the crops were destroyed; still there was some corn, potatoes, cabbage, etc., to be seen, but not as in ordinary years.

The corn crop on all high lands or lands artificially drained in Illinois are good. Central Illinois is in a prosperous condition on the whole. There is no fruit in the State this year, nor the fourth of a crop of potatoes.

I was very much impressed with the similarity in methods of farming and in sameness of crops cultivated over this stretch of country. It hardly seemed possible that farmers between Washington City and Decatur, Ill., a distance of 1,000 miles, should depend so generally on the same crops, raise them and secure them at the same time and in the same manner.

The prices of grain and cattle are very low in Illinois. Some of the campaign speakers attempt to show how prosperous the Illinois farmers are or ought to be. The story sounds plausible, but the farmers know better. The beautiful, political story is too absurd to catch votes. The old time evidences of prosperity are all lacking.—R. M. BELL.

THE ALLEGHANY FARMERS' CLUB.

EDITOR AMERICAN FARMER: At the November second meeting of our club, the friendship meeting, several things were discussed which I think will interest your readers. The question-box was opened, and one of the first questions asked was, Does it pay to sell hay at present prices, rather than feed it out? One member answered that he did not believe in selling it at all. Another member, Mr. Clark, said that he believed in feeding it to stock; that he would never sell his hay unless he could get $15 per ton for it. He said that if he should not feed it all out he would keep it over, and he has kept hay seven or eight years. If you feed it to good stock, to good cows that give lots of milk, and to good young stock it always pays better than selling it. He feeds some straw in the Winter to dry his cows off, since he wants them to have a rest of at least two months. Just before they begin to come in in the Spring he begins to feed and keeps it up until the animals get to grass.

Should cows be fed ground food, and if so what kind and how much? was the next question in order, and Mr. D. H. Norton said he has never had any trouble in raising calves. He feeds them on dry skimmed milk from the butter factory and dry meal. Mr. R. E. Middaugh stated that he had tried a good many ways and had had a good deal of success. The calves will eat a good deal, and it is necessary to begin with a little at a time. He had some early cows which did very well on this last Winter.

There were a good many answers to the question, Which pays the best, cows or sheep? Mr. Cole said that he did not think that there was any difference when the same care and outlay was exercised. He has kept 40 cows and 400 sheep for some years, but he has never been able to figure up much difference in the profits. Mr. Clark stated that he started farming with raising sheep, and that he did not like the first ones he had because they were too fine wooled. He sold these and got coarser ones, which he liked better. At present he is in the dairy business, and finds that it pays. Another member was of the opinion that cows paid very well, and that there was money in them.

Can anyone suggest a remedy for pear blight on the fruit? R. E. Middaugh said that it could be prevented by spraying with a copperas solution. We must spray for everything now; it is very easily done. A good spraying machine can be had for $9, and when obtained fasten on wheels, and by driving through the orchard between rows it is easy to reach every tree. An orchard of 200 trees can be sprayed in this way in two hours by two men. For the tent caterpillar and the codling moth he thought it advisable to use one-fourth of a pound of paris green to about 50 gallons of water. Care should be exercised in spraying, and it is best to spray once after the flowers are going out of blossom, so as not to injure our best friends, the bees. Spray twice afterwards at intervals of 10 days. It was his opinion that bees are essential to successful fruit culture. In one orchard where he had several colonies of bees he had a good yield of fruit; but in another where they were not fertilized on account of wet weather there was scarcely any fruit. This Spring he observed bees at work during quite rainy weather, and by this means the pollen was distributed and fruit was the result.—R. E. M., Angelica, N. Y.

THE GRAPE BUSINESS IN NEW YORK.

EDITOR AMERICAN FARMER: During a conversation sometime ago between a gentleman and myself in regard to the grape business I was informed that the cultivation of grapes for New York markets was first introduced by Messrs. Thorn, Heath & Kniffin, of Clintondale, Ulster Co. These gentlemen realized such a large price for the fruit that others hearing of it were induced to go into the buisness also, and from that time to the present day it has so increased that one cannot ride through Ulster County without coming across immense vineyards of grapes. The grapes are shipped to New York in what are called gifts, or crates, not returnable, and they hold about 40 pounds. There are eight tills in a gift crate. These crates cost 20 cents each, including tills and partitions.

Grapes during the month of September, 1892, brought from 2¼ to 3 cents per pound. We will say a grower gets 2¼ cents per pound for his grapes. Out of this he has to pay 20 cents each for his crates, 10 cents per hour for picking and packing, and then comes the freight, cartage, and commission, and what does he have for his share? Just about 30 or 40 cents on a crate of grapes besides his labor. There was a time when the man with two or three acres of fruit

made money, but the trouble now is that all the farmers have set out their farms in fruit—five or six acres in grapes, two or three in currants and other fruits, and this is the cause of low prices, and this is how it is:

We will take grapes, for instance. They are one day bringing three and four cents a pound. The consequence is the farmers go to work and send in from 150 to 200 crates the following night, and down goes the price because of the glut in the market. Whereas if these farmers did not have all this fruit, why the man with a small place would get the benefit of the high prices. We do not mean to blame the farmers, but to show those who think there is lots of money in the fruit business that such is not the case unless you have lots of it. It is the commission men, grocery men, and middle men who get the money, and not the producer. Of course, the man who has lots of fruit is not affected quite as much with the low prices as the man with a small place would be, but it is just so in all business. Competition is great everywhere.—W. R. ORDWAY, Milton, N. Y.

SELECT CLYDESDALE HORSE SOCIETY.

EDITOR AMERICAN FARMER: In reply to yours of the 8th inst., say I have mailed you under separate cover Volume 1 of the Select Book, which I trust will reach you promptly. We already have registrations enough to warrant us in getting out another volume, which will probably be done in the course of a few months. As a society we won a notable victory in getting the Government to recognize us and place our horses on the free list after they had issued instruction bebarring us. Col. S. D. Thompson, of Chicago, President of the society, went to Washington and laid the whole matter before Hon. J. Rusk, and had no difficulty in getting him to recognize our claims. I will try to have some items for you in the future.—CHAS. IRWIN, Secretary, Topeka, Kan.

STANDARD POLAND-CHINA RECORD.

EDITOR AMERICAN FARMER: Our Standard Records shows what has been accomplished in the short space of five years. We have gotten out our sixth volume, a copy of which we mail you, and are now preparing the seventh volume for the press as fast as possible. We will have it out next Summer, a larger volume than the last, and published earlier in the year. It has now been six years since the organization of the Standard Record. Our plan is unique. In 1890, and also in 1891, we paid 20 per cent. dividend on the par value of our stock to all holders. We have now 422 shares sold—our limit is 500 shares—and are in good condition.—IRA K. ALDERMAN, Maryville, Mo.

American Shropshire Meeting.

As the National Horse Show is postponed one week later, the American Shropshire meeting will be held at the Grand Pacific Hotel, Chicago, Ill., Dec. 6, with other particulars the same as before mentioned.—MORTIMER LEVERING, Secretary.

DEPARTMENT OF AGRICULTURE.

Annual Report of Secretary J. M. Rusk.

The report of the Secretary of Agriculture begins with a comparison of the export trade of the past fiscal year with that of former years, and emphasizes the fact that of the more than one billion dollars representing the exports of our domestic products for the past year, nearly 80 per cent. consisted of agricultural products, thus not only making the United States the creditor of the world for a sum exceeding $200,000,000—the excess of our exports over imports—but relieving our home markets from a surplus product which would otherwise have reduced prices to a point below cost of production. For a large share in bringing about the conditions which have made these gratifying results possible, the Secretary claims credit for his Department.

In regard to imports, he finds encouragement for the farmers in the fact that, in spite of an aggregate increase, there is a reduction in the proportion of imports consisting of products which compete with our American agriculture, for while in the fiscal year ending in 1889, 54 per cent. of the imports were competing, only 44 per cent. of our imports for the past fiscal year did so compete. He nevertheless regards the imports, competing with the products of our own soil, as still far too great. He instances $40,000,000 worth of animal products, $67,000,000 worth of fibers, $27,000,000 worth of hides, $30,000,000 worth of fruits and wines as articles of this kind, and cites the imports of raw silk, amounting to $25,000,000 yearly, as an instance of products imported, which could with proper encouragement be produced in our own country. He declares these figures to indicate the main ultimate object of the work of the Department, which he defines, in brief, as "the closest study of all markets abroad which may be reached by our own agricultural products, accompanied by persistent and intelligent efforts to extend them, and the substitution in our own markets of home-grown for foreign-grown products."

Since his last report, prohibitions against American pork products have been withdrawn in all countries where they existed, and 40,000,000 pounds of inspected pork, which without inspection could not have found a market abroad, have been exported. Comparing the export trade for May, June, July, and August of this year, as a period in which the effects of inspection can be clearly noted, with the same period last year, he notes an increase in quantity shipped this year of 62 per cent., at an advance in price which increased values for the same period by 66⅔ per cent. He compares prices for September, 1892, with those of September, 1890, the year before pork inspection was adopted, and shows an increase of 80 cents per 100 pounds in favor of this year, an average of $2 per head on every hog sold, an increase in price highly gratifying in view of the large increase in the number of hogs marketed.

Referring to his proclamation of Sept. 26, declaring the country free from pleuro-pneumonia, he emphasizes the precautions taken before that proclamation was issued, and the thoroughly satisfactory grounds existing for this declaration of our immunity from that disease.

Reviewing the regulations for the control and prevention of Texas fever, he concludes with the declaration that they "have saved three times as much money to cattle growers yearly as is required to run the whole Department."

Our inspection laws have restored the confidence of foreigners in the healthfulness of our cattle. Live cattle exports in 1889 amounted to 205,000 head, whereas in 1892 we exported 394,000, at an increase in value averaging $8 per head. A comparison of Chicago market quotations for September, 1892, with September, 1889, shows an increase in the value of cattle sold, amounting to from $4 to $15 per head, according to weight. On the aggregate of cattle sold in a single year, this would amount to $40,000,000.

The Secretary says of the work of his Indian corn agent in Germany, that many difficulties attended the introduction of a new food heretofore generally regarded in Europe as not suitable for human consumption. A mixed corn and rye bread was found necessary to secure keeping qualities in a country where all bread is made and sold by the bakeries, and corn-grinding machinery purchased in America is now in use in several mills in that country; one result is the maintenance of the price of corn in the face of largely increased exports, conditions which have heretofore always accompanied a great depreciation in price. The corn exports for 1890, the only year in which they have equaled those of the present year, brought the price down to a fraction under 42 cents a bushel at port of shipment, against a fraction over 55 cents per bushel this year, a difference aggregating, on the exports of the past fiscal year, not less than $10,000,000.

Secretary Rusk notes the reduction of the cotton area in this country as a movement in the right direction, and calls attention to the rapid increase in our imports of raw cotton. He has undertaken experiments with imported seed, to secure the production of a home-grown cotton, which will meet all the requirements for which Egyptian and other cottons are now imported.

With reference to our cereals he attributes the excessive anticipations formed regarding the price for wheat throughout the crop year of 1891 to failure to appreciate the changed conditions now surrounding the production and marketing of the world's wheat crop. "Taking the world throughout, the fat crops," he says, "more than equaled the lean crops of 1891, so that there was actually more wheat grown in that year than in 1890." Even the exports from Russia, where famine existed in so large a section, and where exports were for a time prohibited, amounted to 105,000,000 bushels, nearly as much as the average of the past four years, and more than the average for the past 10 years. He says, "The conditions which have at last overwhelmed cotton-growers now confront wheat-growers." Hence the American farmer must reduce the wheat acreage and so bring production down to the normal demand.

Of barley, he says: "The domestic market, which has heretofore absorbed 10,000,000 bushels of foreign barley, is now reserved for the domestic product, and our acreage and production have increased and been disposed of at good prices."

The experience of the Department in the domestic sugar industry for the past year confirms his former reports and shows that domestic sugar can be produced with profit to the grower of the crop and to the manufacturer, provided that the conditions of culture and manufacture insisted upon by the Department are secured.

Tried to Spoil a Good Sheep Country.

A worthy exchange says: "There are 20 well-built towns in Kansas without a single inhabitant to waken the echoes of their deserted streets. Saratoga has a $30,000 opera house, a large brick hotel, a $20,000 schoolhouse, and a number of fine business houses, yet there is nobody even to claim a place to sleep. Her banks remain, but they are silent. Some of her dwellings stand there as monuments to the credulity of man. At Fargo, Kan., a $25,000 schoolhouse stands on the side of the hill, a monument of the bond-voting craze. Most of the buildings have been removed or torn down. The hotel keeps gloomy watch over the remaining houses, aided by the bank. A herder and his family constitute the sole population of what was once an incorporated city."

Twenty years ago a traveling companion through Western Kansas said: "It is a pity to spoil a good sheep country to make a poor agricultural country." Here are some of the results of just such mistaken zeal. It was so pretty, so easily plowed that plenty of dupes could be found for railroads and other sharpers to inveigle into settlements in arid Kansas.

New York Merino Association.

The 14th annual meeting of the New York State American Merino Sheep-Breeders' Association will be held in Rochester, at the Whitcomb House, Dec. 13 and 14. Meeting of the Executive Committee Tuesday, at 3 p. m.; also Tuesday evening at 8 o'clock. Wednesday morning meeting called to order at 11:30. President's address, Secretary's and Treasurer's reports. Wednesday afternoon, 1 p. m., election of officers for 1893 and miscellaneous business. The remainder of the afternoon will be occupied with a suitable program.—J. H. EARLL, Secretary, Skaneateles, N. Y.

The hog when properly managed is among the most economical machines for changing coarse grains, grasses, and roots into a valuable meat product.

THE HOUSEWIFE'S DEPARTMENT.

We offer below a large assortment of household articles for the special benefit of our lady readers. In the preparation of this list we had in view particularly the wants of mothers during the approaching holiday season. We have therefore included a list of gifts for the children, as well as various articles for larger people. In making up the assortment we have expended a great deal of time and pains in the examination of the largest stocks of goods in the New York market. We have thus been able to secure many things not to be found at all in our country stores, and in all cases we have aimed to save our patrons at least 40 per cent. upon retail prices for the same class of goods.

Everything here offered will be found to be of the very best quality and of the largest value for the respective prices given. It will be noticed that we have given the price and postage separate in the case of everything sent by mail. In those cases where postage is not named, articles will be sent by express to the nearest express office, except where it is stated "postpaid."

In all cases where postage is given our patrons will understand that the article is mailable, and that we will send it postpaid when the specified postage is inclosed. In the case of these articles we charge nothing for the cost of packing and handling, but simply ask the average postage to reimburse us for the stamps required.

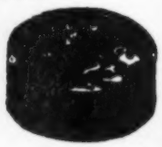
CHIMES ON WHEELS.

No. 1.

Nickel bell on wheels, to be drawn across the floor; has a very pretty jingle; three inches high, three inches wide.

Price . . . 16c
Postage 10c.

MUSIC BOXES.



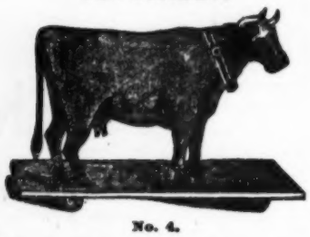
Nos. 2, 3.

2. Round music box, with crank, papier mache case, fancy picture on top, one air 98c

3. Same style, much larger, two airs.. $1.39

Postage 15c.

TOY JERSEY.



No. 4.

Natural leather-covered cow on platform. Size from tip of nose to tail 11 inches; six inches high; has an extra collar and a bell, also mechanical movement which gives utterance to the exact sound of a real cow. Very handsome and amusing. Price..... $1 13
Postage 30c.

RUBBER DOLLS.

Without Dress and With Whistles.

No. 5—6 inches long. Price.....18c

No. 6—7 inches long. Price.....25c

No. 7—8 inches long. Price.....33c

No. 8—9 inches long. Price.....39c

Postage 6 to 12c., according to size.

JACK IN THE BOX.

No. 9.

Wooden surprise box with heads of animals, men, etc. When box opens the head jumps out and surprises the person. Size, 4x4 inches. Colors, red, blue, or green.

Price . . 15c
Postage 6c.

SPECIALTY.

No. 10.

Very handsome Esquimaux doll, jointed arms and feet, covered with white fur, bisque head, 9 inches long.

Price.....22c

Postage 10c.

TOY PIANO.

No. 11.

Twelve keys, or 1½ octaves. Any child can learn to play on this handsome instrument. Height 12 inches, width 14 inches. Book containing instructions given with every piano. Price 98c
Sent by express only.

HOME FISH POND.

No. 12.

Magnetic floating toys, consisting of two rowboats, two sailboats, one large and one small duck, one frog, one large and one small turtle, one large and two small fishes, and one magnet, all packed in a nice glass-covered box, size 10 x 5 inches.

Price..... 59c
Postage..... 30c

TOY HORSE.

No. 14.

Skin-covered, platform, bay horse, covered with genuine horse skin; has a mane and a tail of pure horse hair, bridle and saddle of genuine leather, and stirrups at the sides; 14 inches long, 15 inches high. A highly interesting toy. Price..... $1 49
Sent by express only.

NEW SHOPPING BAG.

No. 17.

Fancy embossed front pocket, draw strings, and sateen gussets; 12 inches wide, 10 inches high.
Price..... $1.19
Postage 15c.

No. 18.

Entirely new shopping bag, fancy outside, handkerchief pocket, draw strings, sateen gussets; 12 inches wide, 10 inches high.

Price.....69c

Postage 15c.

TOILET CASE.

No. 20.

Neat silk plush, satin-lined, toilet case, containing white ivoroid comb, brush, and bevel-plate mirror. Size of case 10 inches long, four inches wide, two and a half inches high; colors, red, blue, and old gold plush.
Price..... $1.19
Packing and postage 50c.

SILK DRAPE.

No. 45.

Handsome silk drapery scarf, 38½ inches long, 14 inches wide; has silk bolting end, beautifully hand painted, trimmed with silk fringe; one of the most popular scarfs manufactured. Colors, cream, white, light blue, pink, pea green, crushed rose, tea rose, orange, shrimp. Price..... 49c
Postage 5c.

LADIES' GLOVES.

No. 28. No. 29. No. 30.

No. 28—Ladies' Biarritz 6-button length in tan, pearl, English reds, browns, slates, and black; good-fitting and durable. Per pair, postpaid..... 89c
Can furnish any of the above with embroidery the same color of glove or black. These are considered good value in New York for $1.

No. 29—Heavy dog skin, ladies' gantlets, suitable for driving or street wear. Per pair, postpaid... $1.39

No. 30—Eight-buttoned glace, real kid, mousquetaire; warranted in any color required. Per pair..... $1.89
Also can furnish any of the light shades with black embroidery or of the same color as glove.

No. 31.

Ladies' 4-button castor undressed gloves in slates, browns, light lemon, and tan; perfect-fitting gloves and durable for wear. Per pair, postpaid..... 89c

No. 32.

Eight-button mousquetaire, suede, real kid; warranted; lemons, tans, pearl grays, browns and black. Per pair, postpaid..... $1.89

No. 33.

"Our Pauline" glace real kid; warranted. Can furnish 4-button tans in lemons and pearl, with narrow black embroidery, or in grays, browns, or blacks, with embridery to match the glove or in contrasting colors. Sizes 5½ to 8. Per pair, postpaid..... $1.40

No. 34.

No. 34. Ladies' fur-top mittens, patent fasteners, plush-lined.

Per pair, postpaid $1.00

No. 35.

No. 35. Ladies' rubber gloves for housework, etc.; best quality, with gantlets.

Per pair, postpaid $1.39

FINE ALL-LINEN HANDKERCHIEFS.

Nos. 46, 47, 48.

No. 46. Ladies all linen initial hemstitched handkerchiefs; any initial except I, U, V, Y, and Z.

Price per dozen $3.10
Postage 5c.

No. 47. Gent's all linen initial hemstitched handkerchiefs; any initial except I, U, V, Y, and Z. Price per dozen $4.75
Postage 12c.

No. 48. Japanese silk hemstitched handkerchiefs, with embroidered initial, cream white; any initial except I, O, U, V, Y, and Z. Price ..... 59c each.
Postage 2c.

FUR-TRIMMED REEFER.

No. 21.

Ladies' cheviot reefer, with full shawl of real cony fur and four cony bead ornaments. Black only; 32 inches long; size 32 to 44, bust measurement.
Price $5.50
Postage 45c.

LADIES' READY-MADE SUIT.

No. 22.

Russian blouse suit of domestic camel's hair; waist with Bishop sleeves and bodice belt; waist tastefully trimmed with Hercules braid; colors, tan, blue, gray, and black. Skirts are 42 inches long, bust measurement 32 to 44 inches. Price $4.75
Postage 35c.

LADIES' TAILOR-MADE SUIT.

No. 23.

Pretty tailor-made suit of all wool, flannel or sacking-cloth waist, neatly bound with braid, and three rows on skirt; colors tan, blue, gray, and black. Skirts 42 inches long, bust measurement 32 to 44 inches. Price..... $4.75
Postage 25c.

SPECIAL! SPECIAL!!

No. 24.

Here is the biggest bargain ever offered, a girl's all-wool blue flannel sailor suit, trimmed with two rows of wide Hercules braid on skirt and collar. All sizes, 6, 8, 10, 12, 14 years. Price $2.25
Postage 11 to 20c., according to age.

STAMPED MOMIE DOILIES.

Nos. 40, 41, 42.

Square stamped linen doilies of brocaded momie cloth, one row of open work, fringes all around. Size 10x10. Price per dozen $1.10
No. 41. Size 12x12. Price per dozen 1.90
No. 42. Size 14x14. Price per dozen 2.10

GENTLEMEN'S GLOVES.

No. 36.

Perrin Trevor's real French kid, finest quality and finish, in tans, English reds, browns, and black; warranted. Per pair, postpaid $2.00

LADIES AND MISSES FURS.

No. 25.

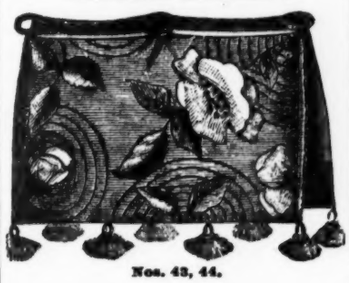
Black French hair set, consisting of muff and boa; muff handsomely lined with heavy satin; boa three yards long. Each set in a neat box. Price.. $3.35
Postage 42c.

No. 26 is a very handsome American seal set, consisting of muff and boa, with animal's head.
Price..$11.50
Postage 22c.

No. 27 is a handsome genuine black Astrakhan set, consisting of muff and collaret, with head; muff handsomely lined with satin; collaret 29 inches long.
Price...$10.00
Postage 20c.

Nos. 26, 27.

SLUMBER CUSHION.



Nos. 43, 44.

Very neat flowered silk slumber cushion, trimmed with silk tassels, sateen lined; a very desirable thing for rocker or chair; great comfort for the head; size 11 inches wide, eight inches high. Price 56c
Postage 22c.

No. 44. Very handsome silk slumber cushion, various hand painted designs of flowers, sprays, etc.; trimmed with silk tassels and rings, sateen lined; size 11x8.
Price 89c
Postage 22c.

LADIES' WORK BOX.

No. 49. Very handsome polished wood-work cabinet, satin lined: contains scissors, bodkin, glove buttoner, and thimble; five inches long, three and a half inches wide, two and a half inches high. Price..... 89c
Postage 12c.

No. 50. Handsome silk plush work box, silk lined, with bodkin, scissors, and thimble; colors, red, blue, and old gold. Price 29c
Postage 12c.

Nos. 49, 50.

OUR GREATEST BARGAIN

No. 37.

These outfits are the best we have ever offered, and we know will prove a surprise to all who order. They consist of suits with double-breasted jacket, extra pants, and Harvard cap, made with peak and roll band. Just the thing for Winter. Material is of gray, red or brown mixed cassimere. Price of outfit is $2.75
Postage 35 to 60c.

ORNAMENTAL GLASSWARE.

No. 15.

This elegant and complete set of polished glass tableware, consisting of 64 pieces, as follows: 12 fruit saucers, 1 fruit or berry bowl, 2 pickle dishes, 12 water tumblers, 12 wine glasses, 12 goblets, 1 celery dish, 1 syrup jug, 1 oil bottle, 1 vinegar bottle, 1 salt shaker, 1 pepper shaker, 1 sugar sifter, 1 fruit bowl, high, 1 butter dish, 1 spoon holder, 1 cream pitcher, 1 sugar bowl, 1 large jug. The above cut shows design of set.
Price $5.50
Sent by express or freight.

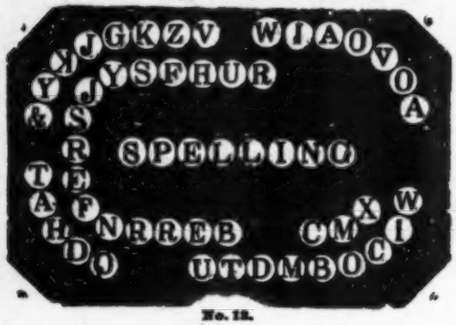
In ordering, be sure and give name of the article, as well as the number, to avoid any possible error.

Send remittances by Postoffice money order, express order or registered letter.

Postage stamps will be taken for small orders. Address

THE AMERICAN FARMER,
Washington, D. C.

UNIVERSAL SPELLING GAME.



No. 12.

The letters are so arranged that they cannot become loose. Two entire sets of alphabets; any word can be spelled thereon. This is one of the most instructive toys of the kind ever made. Letters are black on red, and the board is highly polished and decorated; size 12 x 9 inches. Price . . . 89c

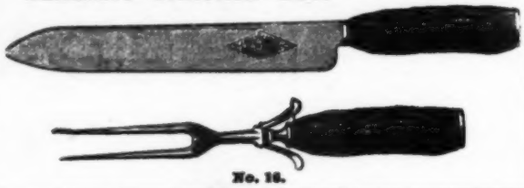
Postage 34c.

ELEGANT CARVING SET.

Three pieces, Russell steel, in neat box. Knife 8-inch blade.

Price..... $1.75

Postage 20c.



No. 16.

SPLIT LEATHER GLADSTONE VALISE.

No. 18.

Japaned frame, and two leather straps; black or brown.

Price $2.75

Sent by express only.

STAMPED MUSLIN PILLOW SHAMS.

Thirty inches square, monograms as follows: "Slumber," "Rest," "Good Night," "Good Morning," "Rest in Peace," "Sweet Dreams." Price.. 29c

Postage 5c.

No. 22.

LINEN LUNCH SET.

No. 32.

Very handsome bleached all linen lunch set, consisting of tablecloth 2x 2½ yards, and one dozen napkins 14 inches square, fringed all around, handsome flower designs, with buff, blue, or red borders, all compactly packed in a neat box. Price... $4.25

Postage 54c.

Rolled Gold and Silver Scarf Pins and Watch Charms.

No. 100. No. 101.

No. 100 is a rolled gold scarf or lace pin, a horse's head and horseshoe. Sent as a premium for a club of two subscribers. For sale, delivered 60c

No. 101 is a solid rolled gold sword scarf or lace pin. Sent as a premium for a club of two subscribers. For sale, delivered 65c

No. 102. No. 103. No. 104.

No. 102 is a beautiful solid rolled gold scarf or lace pin in the shape of a handsome sword. Sent as a premium for a club of two subscribers. For sale, delivered... 75c

No. 103 is a sterling silver scarf or lace pin. Sent as a premium for one subscriber and 10 cents added. For sale, delivered, for 40c

No. 104 is a scarf or lace pin made of finely alloyed silver, showing the famous record breaker, Nancy Hanks. Sent as a premium for one subscriber and 10 cents added money. For sale, delivered, for..... 40c

No. 105. No. 106. No. 107.

No. 105 is a bull dog scarf or lace pin made of finely alloyed silver. Sent as a premium for one subscriber and 10 cents added money. For sale, delivered, for... 40c

No. 106 is a lucky scarf pin made in the shape of a horseshoe. Sent as a premium for a club of two subscribers. For sale, delivery guaranteed 60c

No. .07 is our great Jumbo scarf or lace pin. This is made of solid alloyed silver, and the cupar sons are richly engraved. Sent free for one subscriber and 10 cents added money. For sale, delivery guaranteed, for 40c

No. 108 is a ladies' solid silver chatelaine made of sterling cut work. The swivel at the bottom holds a watch, and if detached it is useful as a breastpin. Sent as a premium for a club of five subscribers. For sale, delivered $1.50

No. 108. No. 109.

No. 109 is a charm representing the earth. It is beautifully colored and glazed. The trimmings are solid rolled-gold plate. Sent as a premium for one subscriber and 10 cents added money. For sale, delivery guaranteed, for..... 80c

No. 110. No. 111.

No. 110 has the face of Columbus in front, and on the back a genuine stone. Sent free as a premium for one subscriber and 10 cents added money. For sale, delivery guaranteed, for 50c

No. 111 is a pair of opera glasses, size of cut, to be worn as a watch charm. They may be ordered with World's Fair views or with a landscape in one side and the Lord's Prayer in the other. Sent free as a premium for a club of two subscribers. For sale, delivery guaranteed, for..... 75c

Sent with THE AMERICAN FARMER one year for $1.60.

No. 112.

No. 112 represents a pair of patent-lever cuff buttons. These are either silver or gold plated and decorated with a jockey cap, whip, and horseshoe. Sent free for two subscribers. For sale, delivery guaranteed, for..... 85c

Sent with THE AMERICAN FARMER for $1.60.

A FAMILY DRUG STORE.

A little medicine administered at the right time will often prevent a serious illness. THE AMERICAN FARMER has had a few simple remedies prepared for its subscribers according to formulas of the best N. Y. Physicians.

HANDY BOX No. 2

Contains

100 Quinine Pills, 2 grains.
100 Quinine Pills, 3 grains.

Quinine in bulk, 65 cents per ounce. This is the best, and highest-priced quinine in the market. The price of this box by insured mail is $1.

HANDY BOX No. 3

Contains

100 Quinine Pills, 2 grains.
100 Cathartic Pills.
100 Liver Pills.
100 Anti-constipation Pills.
100 Iron Pills.
100 Anti-dyspepsia Pills.

These 600 pills, put up in a neat box with full directions for use, will be sent by insured mail to any address for $1.

SPECIAL REMEDIES.

If any subscriber wishes a special remedy it can be obtained from this paper at the following rates:

150 Anti-malarial Pills	$1
200 Tonic Pills	1
250 Skin Pills	1
250 Pepsin Tablets	1
200 Diarrhea Pills	1
150 Anti-nervous Pills	1
250 Anti-cold Tablets	1
150 Kidney Pills	1
100 Headache Pills	1

A sample packet of the foregoing nine remedies, containing 25 headache pills and 50 of each of the others, will be sent by insured mail for $1. This sample packet is our Box No. 4, and should be ordered by that number.

PLASTERS—PEPSIN—POTASH.

Plasters should be kept in the house. It does not pay to make them.

Belladonna Plasters, 7 inches by 1 yard, 75 cents.
Mustard Plasters, 6 inches by 1 yard, 45 cents.
Surgeon's Rubber Adhesive Plaster, 1 inch by 10 yards, on spool, 50 cents.

Saccharated Pepsin in half-pound packages, $1.45. Antipyrine, 2 grain tablets, $1 35 per 100. Bromide of potassium, 5 grain tablets, 30 cents per 100. Best worm medicine for children, half a grain each of santonin and calomel, 45 cents per 100.

Address

THE AMERICAN FARMER.
Washington, D. C.

THE MARKETS.

WOOL.

NEW YORK, NOV. 29.

There is a steady market, with a continued good demand and prices firm. Coarse wools in particular are scarce, and some operators have an idea that the supply will be entirely exhausted before new clips can by any possible means be reached. The greatest attention just now is given Texas and Territorial growths. Pulled wools are quieter. Foreign grades have been very quiet and without new feature worthy of note, operators appearing to feel somewhat cautious. XX and above Ohio and Pennsylvania washed fleeces, 29a31c: X washed fleeces, 27a28c: No. 1 washed fleeces, 33a35c; Michigan X and above washed fleeces, 26a29½c; Michigan No. 1 washed fleece, 31a33c; combings and delaine washed, 32a35c; unwashed medium fleeces, 26a28c: Texas Fall, 15a21c; California, 16a23c; Territory, 17a22c; pulled, extra and super, 37a40c.

BOSTON, NOV. 29.

The demand for wool has been steady and the sales are up to the average. Prices remain unchanged. Ohio and Pennsylvania fleeces are selling at 27c, for X, 28a30c, for XX and XX and above, and 32a33c, for No. 1. Michigan X fleeces sell at 25a26c; No. 1 at 29a30c. Combing and delaine selections are in steady demand; No. 1 combing at 34a35c; Ohio fine delaine at 29a30c. Unwashed combing wools are firm at 25a27c. Territory wools are selling well at 55a58c, clean, for fine; 53a54c for fine medium, and 48a50c for medium. Texas, California, and Oregon wools are in fair demand at unchanged figures. In pulled wool there is good trade and sales of super have been made at 33a38c. Australian wools are firm. Foreign carpet wools are steady.

PHILADELPHIA, NOV. 29.

Wool dull; prices nominal and without change. Ohio, Pennsylvania, and West Virginia, XX and above, 28a29c; X, 25a28c; medium, 33a34c; coarse, 32a34c. New York, Michigan, Indiana, and Western, fine or X and XX, 24a26c; medium, 32a33c; coarse, 32a35c. Fine washed delaine, X and XX, 28a32c; medium washed combing and delaine, 35a36c; coarse do, 34a35c; Canada, 31a32c. Tub-washed, choice, 36a38c; fair, 35a36c; coarse, 33a34c. Medium unwashed combing and delaine, 25a27c; coarse, 25a26c. Bright unwashed clothing, fine or X and XX, 19a21c; medium, 24a27c; coarse, 24½a25c Dark, earthy, unwashed clothing—Fine, 15a17c; medium, 18a21c; coarse, 18a21c. Montana, fine, 16a20c; medium, 17a22½c; coarse, 19a22c. Territorial, fine, 13a17c; medium, 15a21c; coarse, 18a21c.

COTTON.

NEW YORK, NOV. 29.

The opening sales showed an advance of 5 to 10 points, later 5 to 6 points of this was lost, followed by a partial recovery and later again lost, then advanced 5 points and still later declined 11 to 12 points. Liverpool cable advices this morning merely responded to the break in this market yesterday, and under this pressure local sentiment was very weak; subsequently the market commenced to develop unexpected strength on outside buying orders, which were very heavy, causing the rise in prices above noted, but later, under a pressure to sell, the tone became weak again and a decline of 11 to 12 points was submitted to. The spot trading was light and prices 1-16c lower. Middling uplands quoted at 9 15-16c. Sales of 454 bales. Liverpool this morning reported the market for spot cotton quiet at ¼d, decline in quotations. Middling uplands 5¼d. Sales 7,000 bales. Future deliveries were quiet at 8-64a9-64d, decline from yesterday's value. Intermediate changes resulting in a gain of 2-64d, were subsequently advised, followed by a final loss of partially 1-64d, closing quiet. Manchester reports the market for yarns dull but steady, with offers for yarns scarce.

LIVE STOCK.

NEW YORK, NOV. 29.

Beeves—The trading opened active for all grades at an advance of 10a20c per 100 pounds, and closed very firm, with a full clearance of the yards. Poor to prime native steers sold at $3.50a5.35 per 100 pounds. Bulls and dry cows at $1 25a3.75. Dressed beef steady at 7¼a9c per pound for poorest to best native sides.

Latest private cable advices from London and Liverpool quote American steers firm at 10¼a12c per pound for dressed weight, sinking the offal, and American refrigerated beef steady at scant 8½c per pound.

Quotations for beef cattle on live weight:

	Per 100 Lbs.
Prime to extra native steers	$5 35 a 5 95
Good steers	5 00 a 5 10
Fair steers	4 10 a 4 50
Medium steers	4 00 a 4 10
Common and ordinary steers	3 00 a 3 10
Texas and Colorado steers	Nominal.
Poor native steers	3 00 a 3 50
Bulls and dry cows	1 25 a 3 75

A year ago prime steers were selling in this market at $5.25a5.40 per 100 pounds.

Sheep and Lambs—At Jersey City the market ruled dull at a reduction of 15c per 100 pounds on sheep, and fully ½c per pound on lambs, but at Sixteenth street buyers appeared to be unusually generous and sales of choice lambs were at an advance of ½c per pound. At both markets sheep sold at $3a5 per 100 pounds, a selected bunch for exportation bringing $5.75; common to choice lambs at $4.75a6.25. Dressed mutton steady at 7a8½c per pound; dressed lambs firm at 8a9½c.

Hogs—Receipts yesterday and to-day were 75 carloads, or 11,804 head, including two carloads for sale. Market weak at $5.40a6 per 100 pounds.

CHICAGO, NOV. 29.

Cattle—Market slow; Christmas beeves, $5.85a6; good to choice, $4.50a5.50; others, $3a4.40; Texans, $2.50a3.25; stockers, $1.75a3; cows, $1a2.37.

Hogs—Market 10c higher on heavy; light lower; rough and common, $5.50a5.60; packing and shipping, $5.65a6; fancy, $6.02a6.07½; butchers' and medium, $5.75a5.90; light, $5.10a5.70.

Sheep—Market steady, dull; natives, $4a5.35; Western, $4.40a5.80; lambs, $3.70a5.65.

PRODUCE.

NEW YORK, NOV. 29.

Beans and Peas—Marrow beans have arrived very sparingly and with the supply small and steadily decreasing and a good jobbing and export demand the price has advanced to $2.42½a$2.45 per bushel, the latter for choice. Medium and pea move slowly in competition with foreign beans. No white kidneys offering and values more or less uncertain. Red kidneys were meeting with a good export demand and late figures were well sustained. Black turtle soup scarce and high. California limas dull. Green peas were in active demand, the supply moderate and the tone of the market very firm. Beans, prime mediums, 1892, $2.05; prime marrows, 1892, $2.40a$2.45; pea, prime, 1892, $2 05; white kidney, prime, 1891, $2.75; red kidney, prime, 1892, 2.30a$2.35; foreign mediums, $1.65a1.75; beans, California lima, $2.05a2.10; green peas, prime, in bags and barrels, 1892, $1.75a1.80; Scotch, $1.80a1.85.

Butter—The market has ruled quiet throughout the week, and, with receipts liberal and steadily increasing, the tone is by no means a strong one. Several new elements are entering into the situation. First, the daily receipts of State dairy and Northern creamery butter are increasing; second, advices from the West are to the effect that the make is larger in some sections, and the fact that our market is now higher than any other in the country tends to draw the butter here. Then the prevailing high prices on fancy butter are turning the attention of buyers to the commoner sorts. All these facts combined tend to create an easier feeling in the better qualities. The quotation on extra creamery still remains 31½c, however, but whether it can be maintained the balance of this week is a question. The outside figure is certainly extreme, regular lines of State creamery are scarce, and it is hard to find anything fresh that does not show frosty effects. The best grade of dairy butter, either in half tubs, tubs or entire lines, meet with ready sale. Half tubs, extra, common, 26a27c; fresh tubs, 26c, and firkins and tubs, 24a25c Extra imitation creamery very scarce and nominal. Lower grades quiet and without special feature. A small export business was reported in factory butter this week, only 700 tubs being shipped to Europe, but West India packers and bakers' supply men have purchased the medium grades more freely at 15½a16c. Stocks of ladles on hand and current receipts of same are small and the tone of the market steady. Creamery, State, and Pennsylvania, extras, 28a29½; do, Western separator, extras, 31½c; do, Western, seconds to firsts, 26a29c; State dairy, h. f. tubs fresh extras, 25a27c; do, h. f. tubs or pails, seconds to firsts, 20a24c; Western imitation creamery, firsts, 23a25c; do, seconds, 18a20c; Western dairy, firsts, 21a23c; do, seconds, 17a19c; Western factory, extras, 17a18c; do, firsts, 16a17c; do, thirds to seconds, 15a16½c.

Cheese—Since our last the market has been in very good shape as regards both demand and prices. The home trade has been excellent, many dealers being behind on their orders, and quotations are firm through the entire list. Most all the cheese in the country has been bought up at an advance of 1c per pound, more than the same cheese cost last year, which fact adds material strength to the situation here. At Bliss, N. Y., the balance of the season's make was purchased last Saturday at 10¼a10½c. Small size full-cream cheese is selling at 11¼a11½c, the outside figure being for special quality. Part skims have been in good demand and close a little firmer State factory, full cream, choice, 10¼a11c; fine, 10a10½c; fair to good, 9¼a10c; common to fair, 8½a9½c; skims, choice, 7¼a8c; good to prime, 6a7c; fair to good, 5a6c; common, 3½a5c; full skims, 1a3c.

Eggs—Trading was light, but the tone on strictly fresh gathered was firm at 27c, as receipts contained a very small proportion of such eggs and stocks on hand are small. No discrimination seems to be made in regard to section; some fresh gathered from southerly sections bringing more money than Northern eggs. The weather is very unfavorable for the movement of icehouse stock, but the market remains steady. Limed eggs quiet, but really fine marks held at former figures. New-laid, fancy (near-by), at mark, 28½a29c; New York State and Pennsylvania, loss off, 27a28c; Michigan, Northern Indiana and Northern Ohio, loss off, 26½a27c; other Western, new-laid, prime, loss off, 26c; Western, icehouse, Fall packed, 22a24c; early packed, firsts, 25a26c; fair quality, 18a19c; inferior, per case, $4a4.50; State, limed, per dozen, 20c; Canada, limed, per dozen, 19½a20c; Western, limed, per dozen, 19½a20c.

Dried Fruits—Evaporated apples are in small supply. Desirable fruit is held with confidence. Considerable fruit was taken by exporters, but shipping and local demand is light. Southern sliced are dull and weak, the offerings free. Southern coarse cut have a very moderate demand. Chops dull; cores and skins are freely offered, with prices in buyer's favor. Peaches quiet and unchanged. Plums scarce and firm. Other fruits have a light movement in range of prices quoted. Apples, evaporated, 1892, fancy, 9a9½c; choice, 8½c; prime, 7¼a8½c; N. C., sundried, sliced, 1892, 5c; Southern, coarse cut, 1892, 4½c; do, quarters, 1892, per pound, 5c; chopped, 1892, per pound, 2c; cores and skins, 1892, per pound, 2c. Peaches, Georgia, peeled, 1892, fancy, 12¼a13c; choice, 11a12c; prime, 10a10½c; common to fair, 6a9c. Cherries, 1892, per pound, 17a19c. Blackberries, 1892, per pound, 6½c. Huckleberries, 1892, per pound, 11¼a12c. Raspberries, evaporated, 1892, 19a20c; sundried, 1892, 18a19c. Plums, State, 1892, 12c; Southern damsons, 1892, 10a11c. Apricots, California, 1892, per pound, 14a16c. Peaches, California, unpeeled, 1892, bags, 12a15c.

Green Fruits—There was a firm market for all grades of apples, as receipts are lighter and dealers show a disposition to shave lots not quickly sold. A fery fair demand from the home trade keeps the higher grades firm, and shippers are taking the lower grades of up-river fruit for shipment South. Grapes in light supply, and fine stock is easily placed at top quotations, but poor drag at irregular figures. Cranberries have a good demand and the market is very firm. Florida oranges are in free supply and the tone is a little easier, as the bear element is trying to depress prices and dealers find that they have to make concessions of 5a10c per box to keep fruit moving. There is no surplus on the market, but straight lines carried over from last week have been freely offered this week at $2.50, which tends to create an easier feeling. Tangerines and mandarins in very moderate supply are wanted, and the little grape fruit sells well. Lemons firm. Hickory nuts scarce and high. Peanuts quiet and easy. Chestnuts about out of market.

Apples—King, per double-head barrel, $3a4.50; Baldwin, per double-head barrel, $2a5 75; Northern Spy, per barrel, $2a4; Spitzenberg, per barrel, $2.50a4.50; Greening, per barrel, $2.50a4; common, per barrel, $1.25a1.75.

Grapes—Western New York, Catawba, per five-pound basket, 10a12c; western New York, Concord, per five-pound basket, 10a12c; western New York, Concord, per 10-pound basket, 18a20c; California, Tokay, per half crate, $2a2.25; California, Cornichon, per crate, $2a2.50.

Cranberries—Cape Cod, fancy, per barrel, $8.50 a9; do, prime, per barrel, $7.75a8.25; do, fair to good, per barrel, $6.50a7.50; do, poor, per barrel, $4a6; do, per crate, $1.75a2.50; do, Jersey, per crate, $1.50a2.25.

Lemons—Florida, per box, $3a5.

Oranges—Florida, bright, fancy, 176a200, per box, $3a3.25; do, straight lines, $2.25a2 75; do, inferior, $2a2.25; do, Russet, prime, $2a2.50; Tangerines, Florida, per box, $5a8; Mandarins, do, per box, $4a5.

Grape Fruit—Florida, per box, $2.50a3.

Peanuts—Virginia, hand-picked, fancy, per pound, 4½c; do, shelled, No. 1, per pound, 2¼a3c; do, No. 2, per pound, 2c; do, Spanish, shelled, No. 1, per pound, 4¼a5c; do, No. 2, per pound, 2½c.

Hickorynuts—New, per bushel, $2.50a3; do, old, per bushel, $1a1.50; Pecans, ungraded, per pound, 7½a8c.

POULTRY.

NEW YORK, NOV. 29.

Market fairly active for good stock. Fowls showed the most strength and were easily placed at 11a11½c, but chickens were weak at 10c, and old roosters at 7c per pound. Turkeys were over plenty and very weak at our reduced figures, with 10c the top price for prime. Ducks scarce and firm. Geese weak and lower owing to the heavy offerings. Pigeons slow. Spring chickens, local, per pound, 9¼a10c; Western, per pound, 9¼a10c; Southern, per pound, 9¼a10c; fowls, local, per pound, 11c; Western, per pound, 11a11½c; Southern and Southwestern, per pound, 11a11½c; roosters, old, per pound, 6½a7c; turkeys, mixed, 9a10c; ducks, local, per pair, 75ca$1; Western, per pair, 60 80c; Southern, per pair, 50a65c; geese, Western, per pair, $1.25 a1.50; Southern and Southwestern, per pair, $1.25; pigeons, live, tame, per pair, 25a35c.

Dressed—There was a large accumulation of dressed poultry from last week, mostly turkeys, but plenty of chickens, fowls, ducks, and geese. Towards the close fresh arrivals continue liberal, a cold storm is prevailing, which has an unfavorable influence and trade is exceedingly slow, with prices weak and irregular on most all descriptions. Turkeys are in larger supply than generally expected and moving very slowly for current use, though speculative buyers are looking more freely for closely graded lots as to size and quality to put in freezers, for such buyers are offering 10a11c for dry-picked iced, and 11a12c for dry-picked, but holders generally ask 12c for iced and up to 13c for dry, and very little stock is moving. Iced scalded turkeys dull and offering at 10c. Chickens and fowls are selling very slowly, the supply liberal and prices ruled in buyers' favor. Prime chickens are offering at 9a10c, either dry-picked or scalded, while 9a10c is top for dry-picked fowls, and 9c for scalded, dry-packed, or iced chickens or fowls strongly. Ducks and geese dull and irregular. Dry-packed poultry: Turkeys, Jersey, fancy, per pound, 13a14c; up-river, fancy, do, 13a14c; Jersey and up-river, fair to good, 10a12c; Delaware and Maryland, good to choice, per pound, 12a14c; State and Pennsylvania, choice, 12a13½c; do, fair to good, 10a11c; Ohio and Michigan, choice, 11a12c; other Western, choice, 10a12c; Western, fair to good, 9a10c; do, inferior, 7a8c. Chickens, New Jersey, prime, per pound, 11a12c; State and Pennsylvania, 10c; Western, 9a10c. Chickens and fowls, Western, mixed, choice, per pound, 9a10c; do, fair to good, 7a8c. Fowls, Jersey, per pound, 10a11c; State and Pennsylvania, 10c; Western, 9a10c. Fowls and chickens, Western, inferior, 6a8c. Ducks, Jersey, choice, per pound, 12a14c; Maryland and Delaware, 10a13c; State and Pennsylvania, 10a13c; Western, 9a12c, Western, inferior, 6a8c. Geese, Maryland and Delaware, per pound, 11a13c; do, Western, per pound, 7a10c. Iced Poultry: Turkeys—Dry-picked, fair to prime, per pound, 10a11c; scalded, prime, 10c; scalded, fair, 7a9c. Chickens, Philadelphia, 3a3½ pound per pair, per pound, 14a15; mixed weights, 11a13c; Western, dry-picked, choice, 9a10c; dry-picked, small and poor, 7a8c; scalded, choice, 9a10c; scaded, fair to good, 7a8c; scalded, inferior, 6a7c. Fowls, Western prime, dry-picked, 9a10c, prime, scalded, 9c; poor to fair, 7a8c; old-roosters, 6½c. Spring ducks, Eastern, per pound, 13a14c; Long Island, 14c; Jersey and up-river, 13a14c; Western, 8a11c; old ducks, Western, 8a10c. Spring geese, Eastern, per pound, 16c; up-river, 12a14c; Western, 7a10c. Squabs, tame, white, per dozen, $2.50; tame, dark and white, $1.25a1.50.

VEGETABLES.

NEW YORK, NOV. 29.

Arrivals of domestic potatoes are light and as stocks are diminishing the feeling is a little firmer. No quotable advance has occurred, however, but choice stock is held a trifle higher; best Michigan not easily obtainable at $2.12, and that figure is asked for finest State. Wisconsin and other Western, although $2 is about all that can be depended upon. Foreign potatoes quiet and favoring buyers in price; the supply large. Sweet potatoes scarce and firm; there were no receipts from Virginia on Monday, and Jersey stock was held with more confidence in consequence, but no material advance was established. Onions are in fair supply, with the demand light and prices steady. All the cauliflower in the country has been gathered by this time, and no more receipts of fresh flowers may be expected. Southern kale and spinach higher, with a good demand. Florida eggplant is also a little firmer. Choice beans and peas are about out of market and would bring much higher prices. Other varieties on the list are unchanged. Potatoes, Long Island, in bulk, per barrel, $2.25a2.37; do, Jersey, prime, per barrel, $1.87a2.12; do, State, in bulk, per 180 pounds, $2a2.12; do, Western, in bulk, per 180 pounds, $2a2.25; do, Scotch, Magnum, per 168-pound sack, $2a2.25; do, English and Irish, Magnum, per 168-pound sack, $1.75a2.25; do, German Imperateur, per 112-pound sack, $1.65a1.75; do, Nova Scotia and Prince Edward Island, Rose, per 180-pound sack, $2.25; do, do, Mercer, per 180-pound sack, $2; do, Virginia yellow, sweets, $2.50a3; do, Jersey yellow, sweets, $2.75a4; cabbage, flat Dutch, per 100, $2a3; cauliflower, Long Island and Jersey, per barrel, $1a2; celery, Michigan, fancy, per dozen roots, 35a50c; State and Western, poor to good, 10a30c; eggplant, per barrel, $3a6; kale, Norfolk, per barrel, $1; onions, Connecticut, white, per barrel, $2a3.50; yellow, per barrel, $2.25a2.75; do, Connecticut, red, per barrel, $2.25a2.50; do, Orange County, red, per barrel, $1.50a2.25; do, yellow, per barrel, $1.75a2.50; State, yellow, per barrel, $1.50a2.50; string beans, Southern, per basket, $2a4; spinach, Norfolk, per barrel, $1.50a3; squash, marrow, per barrel, $3; turnips, Jersey, Russian, per barrel, 75a80c.

HAY AND STRAW.

NEW YORK, NOV. 29.

Prime hay was in good demand, the supply moderate and full former figures are realized, but ordinary grades are slow of sale. Most of the straw arriving is poor and moving slowly at easy prices. Hay per 100 pounds. Timothy, fancy, 85a90c; one prime timothy, 80a85c; two medium timothy, 75a80c; three or shipping, 65a70c; inferior, 50a55c; clover, black, 60a65c; clover, mixed, 65a75c; straw, No. 1 rye, 55a65c; straw, No. 2 rye, 45a55c; oat straw, 35a40c.

HOPS.

NEW YORK, NOV. 29.

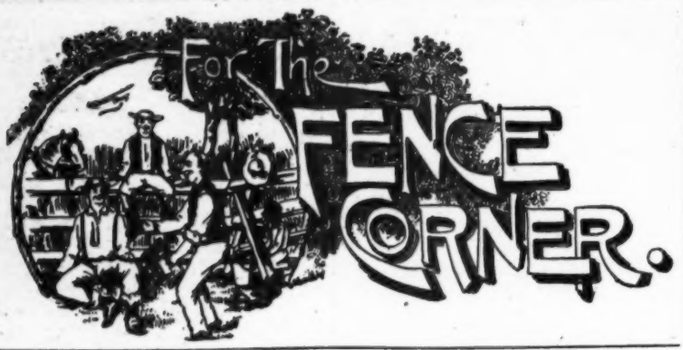
Early liberal purchases were reported from the interior at about the same prices that have ruled previously during the week, and, taken as a whole, the market closed quite steady. It is also reported that brewers are taking hops a little more freely. The prevailing price in the country as per latest mail advices, is from 20a25c. The English market is reported as being steady, the German market quiet; the Pacific Coast market steady. New York State, crop of 1892, choice, 24c; do, prime, 22½a23c; do, common to medium, 20a23c; do, crop of 1891, prime to choice, 21a22c; do, common to medium, 18a20c; do, crop of 1890, 12a15c; do, old olds, 5a10c; Pacific Coast, crop of 1892, choice 24c; do, good to prime, 21a23c: do, crop of 1891, prime to choice, 21 22c; do, common to medium, 18a20c; do, crop of 1890, 12a15c; California, old olds, 5a9c; Bavarian and Bohemian, 42a42c; Altmarks, etc., 43a48c.

Clover for the Swine.

Clover hay is excellent for hogs if fed in the right manner. It does not do to throw the hay to the animals in the same manner in which it is thrown to the horses or cattle. More is wasted than can be possibly eaten. The best way of feeding the clover to the hogs is to cut it in small lengths and slightly moisten with hot water or steamed, but not too long. The pigs eat this with great relish and none is wasted. When fed in this way the clover gives growth and health to the pigs, and the animals are fitted for successful and rapid fattening.

When the hay is cooked or steamed long the swine in a good many cases refuse to eat it. And no wonder, since the matter has become tasteless. If the hay is cooked or steamed for any length of time and mixed with bran or grain to absorb the water the pigs will eat it, but the relishment is not as great as when the clover is prepared, as is first stated. It is noticeable that the hogs will eat cornmeal in preference to hay mixed with shorts, and it is also noticeable to see how much quicker they will devour the clover hay slightly moistened and cut in small lengths than they will the cornmeal.

When a disease is well seated it becomes a standing menace against health.—*Boston Courier.*



Some Epigrams.

BY J. W. TEFFT.

The Boston girl is like a trout,
Because of all her sex,
She is the one who goes about
Most of the time in specs.

The old maid has a beau!
Who can he be?
A long, green stick
In a cup of tea.

They put sugar in tea,
Why not sweetness in me?
The sweet tea gown said,
As pretty Miss Sue,
Who liked nic gowns, drew
It on over her beautiful head.

A Practicing Man.

He—Do you think Mr. Clericus practices what he preaches?

She—Oh, yes! his wife tells me he rehearses his sermons in his study every week.

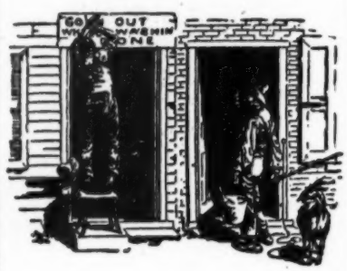
Wants a Job.

Brackly—I heah yose tryin' ter wuk up a perlitical pull, Uncle Mose?

Uncle Mose—Yaas, sah; yaas. I wants ter git some of de big whitewashin' jobs they hab done ebery 'lection time.

A Narrow Escape.

The Rival Advertisers.



I.

II.

III.

IV.

—*Fame.*

A chopping sea doesn't seem to make much impression on the sea-board.—*Boston Courier.*

A Lucky Boy.

Little Dick—I think it's too mean for anything. I had to stay in school all day long, and Johnny Jimson got off at 'leven o'clock.

Mother—That's strange. Why was he allowed to go so early?

Little Dick—Some o' his folks is dyin'.

An Inquisitive Youth.

Tommy—Won't you let me hear your head rattle, Mr. Lovinvane?

Mr. L.—Why; what do you mean, my boy?

Tommy—I heard sister say you were a rattle-brained fellow!

Advantages of Education.

Successful Farmer (whose son has been to college)—What was all that howlin' you was doin' out in th' grove?

Cultured Son—I was merely showing Miss Brighteyes what a college yell is like.

Farmer—Wall, I swan! Colleges is some good after all. I'm goin' into town to sell some truck to-morrow. You kin go along an' do th' callin'.

Remarkable.

First American—Remarkable weather we are having.

Second—Most extraordinary! I haven't caught a fresh cold for a week. —*Life.*

Not Quite Free.

New Arrival—Oi waz towld this waz a free country.

Friend—Well, isn't it?

New Arrival—Indade it is not. Oi had to sthay at Sandy Hook foive days an' then be fumygated befar Oi cud get on th' police foorce.

When a man can't find his shirt button of a Sunday morning his wife is apt to have trouble with his choler.—*Binghampton Leader.*

The Work of Salvation.

Mrs. Podunker—Seems to me 'tisn't exactly right to be addin' so much water to the milk, 'specially on Sunday morning.

Deacon Podunker (milkman)—Why, Miranda, you wouldn't stand in the way o' salvation, would you?

"Of course not."

"Well, don't ye know one-holf o' them what goes to church never hears a word, because they're asleep an' snorin' in their pews. It's shameful!"

"Indeed it is. But they shouldn't fall asleep.

"They can't help it, Miranda. Give people rich milk, an' they're bound to feel sleepy. It's worse than opium. Pump a little more, Miranda."

Referred to an Authority.

"Can you mention any of the lost arts?"

"Why don't you go to Palette. He's an artist that's lost all he ever had."

A Small Matter.

New Man (Signal office)—Indications are for fair weather and northerly winds. Which flag shall I put out?

Old Man—Oh, any of 'em. Nobody knows the difference except sailors, and it's too foggy for them to see.

The Usual Way.

"Hello! Where have you been?"

"Skating."

"On the ice?"

"No, on the back of my neck, of course."

THE AMERICAN FARMER

SPECIAL JEWELRY PREMIUM LIST.

A New List of Holiday Goods of the Highest Quality and Latest Style.

THE AMERICAN FARMER has secured a line of premiums for the benefit of its patrons, many of whom are perhaps out of reach of markets where the best grades of goods are supplied at reasonable prices. Having access to trade centers and a full line of samples from the greatest Eastern factories, we have been able to make a selection of the choicest and most artistic examples offered this season.

We have not explained very fully all the points of excellence in workmanship and material when describing each article, on account of the space which would be required if a full description were given separately under each heading. There are some general points which can be better stated here, as they apply to all articles alike. With reference to the quality of this jewelry, it is all of heavy rolled gold plate except where it is expressly stated that the metal, whether gold or silver, is solid. It is understood, of course, that an article made of rolled gold has a base of cheaper metal upon which is joined, by means of heavy pressure under a high degree of temperature, a covering of gold of commercial fineness. This results in making an article having all the appearance of one which is gold clear through until the outside plate is worn out. In the case of our jewelry only plated goods of the highest class are used, as we patronize none except houses of established reputation.

With reference to the stones used in the rings, they are in every case exactly as represented, and only the experienced expert can detect the counterfeit or imitation stone from the genuine. It will be noticed, however, that in many instances genuine stones are used, and it is so stated. We guarantee the stones to be actually genuine in each instances where it is so announced. All of our goods are returnable if the purchaser is not satisfied, and the money will be refunded; provided, of course, the jewelry has not been worn or in any manner soiled.

The price of THE AMERICAN FARMER is $1 per year, and in all premium offers a subscription to THE AMERICAN FARMER means an annual subscription at the above rate. For example, if any article be offered as a premium for one subscriber and 15 cents added money, it means that $1 must be sent for THE AMERICAN FARMER for one year, with 15 cents additional for the premium. If an article be offered free as a premium for two subscribers, it means that $2 must be sent for two annual subscriptions to THE AMERICAN FARMER, in which case the premium will be sent free, postpaid, to the party sending in the subscriptions.

This rule applies to all clubs and premiums.

NEW WATCH OFFERS.

WALTHAM AND ELGIN WATCHES, WATCH CHAINS, AND JEWELRY FOR AMERICAN FARMER SUBSCRIBERS.

THE AMERICAN FARMER will purchase Waltham and Elgin watches and high-grade jewelry for its subscribers at the lowest prices ever known. Below we list the most desirable watches and jewelry from our enormous stock, but in addition to the goods listed we are prepared to supply every style of Waltham and Elgin goods, also diamonds and precious stones set and unset, and all kinds of jewelry and chains.

Gold Watch, $12—Offer No. 1, Men's Size.

No. 1 is a men's size Waltham or Elgin gold-filled, open-face watch, stem wind and set, seven jewels, and all improvements; an accurate timepiece that looks just like a $100 solid gold watch. The case is guaranteed to wear 15 years, just like solid gold. Watch clubs have been selling this watch for $20. Our price by registered mail, delivered, is only $12, or we will send it as a premium for a club of 10 yearly subscribers at $1 each and $7.50 added money.

Gold Watch, $14.35—Offer No. 2, Men's Size.

No. 2 is just like No. 1, but hunting-case. Price, delivered, $14.35, or sent as a premium for a club of 10 subscribers and $9 added money.

Solid Gold Watch, $25—Offer No. 3, Men's Size.

No. 3 is a genuine Waltham or Elgin watch, with 11 jewels, nickel works, stem wind and set, compensation expansion balance, safety pinion, and all improvements. It is men's size, and comes in a solid gold "Brooklyn Grainger" double-stock case. Price, in either open face or hunting-case, delivery guaranteed, $25, or sent as a premium for a club of 15 subscribers and $17.50 added money.

Solid Silver Watches—Offer No. 4.

No. 4 comprises three distinct watches. They all have the same case, three ounces coin silver, open face or hunting-case. Anyone of the watches offered is a good and reliable every timepiece, and we guarantee satisfaction every time. No matter what watch you select. Full-jeweled watches are decidedly better timekeepers than those with less jewels. You have your choice of Waltham or Elgin works in the case named above. The prices, including delivery, are as follows:

7-jeweled works..... $10 00
11-jeweled works..... 12 50
Full 15-jeweled works..... 14 00

Or we will send the seven-jeweled watch for a club of 10 subscribers and $5 added money; the 11-jeweled watch for a club of 10 subscribers and $7 added money; the full-jeweled watch for 10 subscribers and $9 added money.

Full-Jeweled Watch, $10—Offer No. 5, Men's Size.

No. 5 is a genuine Waltham or Elgin full-jeweled watch, containing all the great patents, such as compensation balance, safety pinion, stem winding and setting apparatus, Breguet hair spring, hardened and tempered in form, patent regulator, etc., fitted into a solid nickel silver, open-face case, with beveled plate glass crystal so heavy as to withstand any strain. The works alone usually sell at from $12 to $15. We send it by registered mail to any subscriber, delivery guaranteed, for..... $10

Sent as a premium for 10 subscribers and $5.50 added money.

Ladies' Gold Watch, $13.15—Offer No. 6, Hunting-Case Only.

No. 6 is a genuine Waltham or Elgin watch, ladies' size, with seven jewels, compensation expansion balance, safety pinion, stem wind and set, and all improvements. The case is beautifully engraved, and is guaranteed to wear 15 years, just like solid gold. This is a trusty time-keeper, and it looks just like a $75 solid gold watch. Sold to subscribers only, delivery guaranteed and prepaid, for..... $12 15

Sent as a premium for 10 new subscribers and $3 added money.

Ladies' Solid Silver Watch, $9.50—Offer No. 7, Hunting-Case.

No. 7 is a solid coin silver watch, ladies' size. This works contains seven jewels, stem wind and set, and all improvements. Sold to subscribers only, delivery guaranteed and prepaid, for..... $9 50

Sent as a premium for 10 new subscribers and $5 added money.

These watches are all warranted by us, and if not found to be satisfactory and as represented, the money will be refunded.

MEN'S WATCH CHAINS.

Our watch chains are the best in the trade. They are made of solid rolled gold plate, and the links are gilded with solid gold, and in every way they present as good an appearance as if they were solid gold. Prices below include free delivery:

No. 1210. Curb chain, 20-year filled gold..... $2 50
No. 1211. Curb chain, 10-year filled gold..... 1 50
No. 1212. Curb chain, rolled gold..... 1 00
No. 1213. Trace chain, 20-year filled gold..... 2 50
No. 1214. Trace chain, 10-year filled gold..... 1 50
No. 1215. Trace chain, rolled gold..... 1 00
No. 1216. Aluminum chain, satin silver cuvral, looks and wears as silver, light as paper, strong as steel..... 1 00

LADIES' WATCH CHAINS.

These chains are made of rolled gold and are beautiful in design and perfect in finish. Prices include free delivery.

No. 3 has small links and a pendant charm made of gold open work. Price, delivered..... $1 75

No. 4 has small links and polished ball pendant. Price, delivered..... 2

No. 5 is made of woven wire with fan pendant. Price, delivered..... 2 75

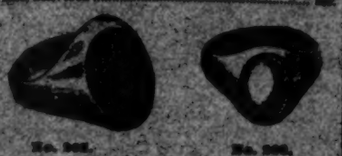
Solid Gold-Filled Rings.

We offer a beautiful assortment of solid gold-filled rings to our subscribers at the cost price to the retail trade. The stones used are genuine and finely cut and polished. In fact, there is no way of distinguishing these rings from solid gold except by sawing them in two. They are stamped 12K. The plate of gold on the outside of the rings is very heavy, and they are extremely popular this year.

No. 295. No. 297.

No. 295 is machined after a $15 solid gold man's ring. The shank is richly engraved, and it comes set with either a genuine Gold Stone, Blood Stone, or Jet or Black Onyx. Sent free as a premium for a club of two subscribers. For sale, delivered, at..... 50c.

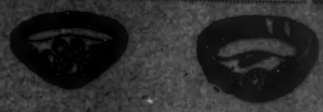
No. 297 is a man's handsome Masonic ring like the cut. Every Mason should have one. The setting is heavy rolled gold and the stone is a Black Onyx. Sent free as a premium for a club of two subscribers. For sale, delivered..... 50c.



No. 302. No. 304.

No. 302 is a heavy gold-filled man's ring. It comes set with flat Gold Stone, Carbuncle, Tiger Eye, Black Onyx, Gold Stone Carbuncle, Blood Stone Carbuncle, Red Onyx, Red Carbuncle, and Flat Blood Stone. Your choice sent free as a premium for a club of two subscribers. For sale, delivered..... 50c.

No. 303 is a man's ring made of solid rolled gold plate set with Turquoise, Carbuncle, Red Carbuncle, Sard Agate, Red Onyx, Black Onyx, or Gold Stone. Sent free as a premium for two yearly subscribers. Price, delivered..... 50c.



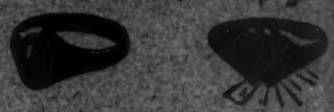
No. 304. No. 305.

No. 304 is a man's solid gold-filled ring set with brilliant imitation diamond. It looks just like a $150 diamond ring. Sent free as a premium for two yearly subscribers. For sale, delivered..... 50c.

No. 305 is a solid gold-filled man's ring with deep-set imitation diamond. Many an error would prohibit this diamond genuine until he viewed it in the test of the glass. Sent free as a premium for two yearly subscribers. For sale, delivered..... 50c.

Subscribers should remember that these rings are made of high-grade stock, and that they far surpass ordinary plated rings in looks as well as in quality.

Ladies' Gold-Filled Rings.



No. 306. No. 307.

No. 306 is a ladies' solid gold-filled ring set with a Carbuncle or Turquoise. Sent free as a premium for one yearly subscriber and 15 cents added. For sale, delivered..... 50c.

No. 307 is a ladies' solid gold-filled ring set with heart-shaped red or green stone and four sparkling imitation diamonds. Sent free as a premium for three yearly subscribers. For sale, delivered..... 50c.

No. 308. No. 309.

No. 308 is a ladies' solid gold-filled ring set with a sparkling diamond-cut brilliant. Sent free as a premium for one yearly subscriber and 10 cents added money. For sale, delivered..... 50c.

No. 309 is a heavy solid gold-filled ring set with brilliant red, white and blue stones. This ring is a beauty. Sent free for two yearly subscribers. For sale, delivered..... 75c.

No. 310 is a solid gold ladies' ring set with a genuine diamond. This is a great chance to get something handsome. It is especially appropriate for an engagement ring. Price, delivered..... $3.50

With THE AMERICAN FARMER one year $3.75.

HOW TO ORDER A RING.

Take an ordinary wooden match and cut off a piece just right length to pass crosswise through a ring of the size wanted. This will give the inside diameter. Inclose the piece of match in your letter, and from this measure we can fit your finger as well as though you had tried the ring on.

THE "SILVER CHICK."

PEPPER AND SALT.

No. 302.

Above is a reduced representation of the most pleasing table novelty going. They are made of American sterling, heavily plated with pure silver. The plate is quadruple, and will last a lifetime.

One is for pepper and the other is for salt. They are filled through the cap, which unscrews at the bottom, and the pepper and salt are shaken out through the top nozzle.

They are sent in a neat silk-lined box, postpaid, to any address with THE AMERICAN FARMER for..... $1 25

For sale alone, postpaid..... 75

Or sent free for a Club of two subscribers at $1 each.

Address

THE AMERICAN FARMER CO.,
Washington, D. C.

A FANCY CUFF BUTTON.

This button is heavy rolled gold, richly chased. In the center is a beautiful diamond-cut brilliant. It is one of the finest buttons of the season. We send a pair of these buttons for a club of only two subscribers, at $1 each. For sale at 75 cents.

THE AMERICAN FARMER CO.,
Washington, D. C.

EVERYONE HIS OWN MILLER.

Feeling sure that every farmer who has chickens and every housekeeper who keeps a well-equipped kitchen will see the advantage of having a small grist mill that can be operated by hand, we have found the best one on the market and offer it on advantageous terms to subscribers.

The above is a good picture of it.

It is adapted for grinding coffee, spices, corn, wheat, or grain of any kind for domestic purposes. For feeding it can be so changed as to crush shells and grind grain to any desired coarseness.

The chilled-iron burrs are four and a half inches in diameter, and are ground perfectly true. The steel shaft and fly-wheel is 20 inches in diameter. In fact, the mill is of the best workmanship in every respect, all parts being made to duplicate. By being screwed to a table or counter it is always in place.

We will have it carefully packed and shipped by freight, receiver to pay charges, which will be trifling, to any subscriber for $3.50, or with THE AMERICAN FARMER for one year it will be sent for $4.

OUR POCKET TOOL CHEST.

This wonderful combination of cutting, sawing, and piercing tools is about the size, when closed up, of a buckhorn-handle jack-knife. It contains the following implements, namely, a saw, screw-driver, lancet, large knife-blade, smaller knife-blade, wood-scraper, gimlet, corkscrew, reamer, bodkin, tweezers, and hook for cleaning horses' hoofs. Mailed, postpaid, to any address for $1.50. Address

THE AMERICAN FARMER,
Washington, D. C.

IMPORTED JAPANESE RUGS.

We have secured for the benefit of THE AMERICAN FARMER subscribers a stock of elegant rugs of Japanese goat-skin. They have just been received from Japan, and are very fine. We have secured a special price on them and they are very cheap. We have had them made up 30 x 60 inches, so as to be large enough for various uses to which smaller sizes cannot be adapted. Our rugs will be found large enough for sofa-covers and lounges, as well as for floor-rugs by side of a bed or in front of a mantel, musical instrument or door. They are also large enough to use as a center rug in a parlor. They are far more desirable and stylish than the Smyrna rugs. The coat consists of soft, furry hair between three and four inches in length, and is very thick. We have them in two colors—which we recommend as most desirable for beauty and service—either gray or white.

One of these elegant rugs will be sent to any subscriber's address by mail, postpaid, for $2.25, or with THE AMERICAN FARMER for one year for $2.70.

If it is desired to have the package registered 10 cents extra must be sent to pay the Government registration fee, whether purchased alone or ordered in connection with the paper.

HANDY, PRACTICAL BOOKS.

Of Interest to Farmers and Agriculturists.

The publishers of THE AMERICAN FARMER have arranged to offer its subscribers a series of manuals on practical subjects which frequently perplex stock raisers, gardeners, and agriculturists.

Oftentimes a little scientific or practical knowledge of a certain subject would save much time and labor. With that view in sight the following series of valuable books have all been prepared by specialists who have made a study of the various subjects:

FRUIT CULTURE, AND THE LAYING OUT AND MANAGEMENT OF A COUNTRY HOME. By W. C. Strong, ex-President of the Massachusetts Horticultural Society, and Vice-President of the American Pomological Society.

Contents: Rural Homes—Choice of Locality—Treatment—A Good Lawn—The Approach—Fruits—Location of the Fruit Garden—Success in Fruit Culture—Profit in Fruit Culture—How to Procure Trees—Quality—How to Plant—Time to Plant—Preparing the Land—Fertilizers—Cutting Back—Distances for Planting—Care of the Fruit Garden—Irrigation—Application of Fertilizers—Thinning the Fruit—Labels—The Apple—Insects Injurious to the Apple—The Pear—Dwarf Pears—Situation and Soil—Pruning—Ripening the Fruit—Insects Injurious to the Pear—Diseases—The Peach—Injurious Insects and Diseases of the Peach—Nectarines—The Plum—Insects and Diseases of the Plum—Apricots—The Cherry—Insects Injurious to the Cherry—The Quince—Insects Injurious to the Quince—The Grape—Grape Houses—Varieties—Insects Injurious to the Grape—Mildew—The Currant—Insects Attacking the Currant—The Gooseberry—The Raspberry—The Blackberry—The Strawberry—The Mulberry—The Fig—Rhubarb—Asparagus—Propagating Fruit Trees—From the Seed—By Division—By Cutting—By Layers—By Budding—By Grafting—Insecticides—Fungicides—Recipes.

This is the most comprehensive book which has ever been published on these subjects.

New revised edition with additions. Illustrated. Price, in one volume, 16mo, cloth [illegible]. With THE AMERICAN FARMER one year [illegible]

HOW TO RID BUILDINGS AND FARMS [illegible] Rats, Mice, Gophers, Ground Squirrels, [illegible] Rabbits, Moles, Minks, Weasels, and [illegible] quickly and safely. How to snare Hawks [illegible] Valuable hints to Housekeepers, Farmers [illegible] try Keepers. By "Pickett." Price, paper [illegible] Sent, postpaid, with THE AMERICAN FARMER one year for $1.15.

THE BUSINESS HEN; BREEDING AND FEEDING POULTRY FOR PROFIT. By H. W. Collingwood, P. H. Jacobs, J. H. Drevenstedt, C. S. Cooper, C. S. Valentine, Arthur D. Warner, Henry Stewart, Philander Williams, James Rankin, Henry Hales, I. K. Felch, Dr. F. L. Kilborne, C. H. Wyckoff, H. S. Babcock, C. E. Chapman, etc.

We believe that this little book will meet with a hearty reception at the hands of all of that vast number of people who are interested in the doings of "the little American hen," and especially in the methods by which practical poultrymen make her so profitable an egg and meat machine. Price, cloth, 75 cents; paper, 40 cents.

Sent with THE AMERICAN FARMER, cloth edition, $1.60; in paper, $1.25.

THE NEW POTATO CULTURE. By Elbert S. Carman. This Book is the result of 15 years of practical experiment, and fully answers the following points: How to increase the potato crop without corresponding cost of production; the best manures and fertilizers, the soil, depth of planting, seeds, culture, the rural trench system, varieties, etc. Price, cloth, 75 cents; paper, 40 cents.

With THE AMERICAN FARMER one year, cloth copy, $1.60; in paper, $1.25.

HOW TO PLANT A PLACE (6th revised edition). By Elias A. Long—A brief treatise illustrated with more than 60 original engravings, and designed to cover the various matters pertaining to planting a place. Following are the leading divisions: Some reasons for planting; what constitutes judicious planting; planning a place for planting; how and what to order for planting; the soil in which to plant, caring for the stock before planting; on the sowing of seeds; after planting; future management of the plants. Just the thing for the busy man. Price, paper, 30 cents.

With THE AMERICAN FARMER one year, $1.15.

CHEMICALS AND CLOVER (105th thousand)—A concise and practical discussion of the all-important topic of commercial fertilizers, in connection with green manuring in bringing up worn-out soils, and in general farm practice. Price, paper, 20 cents.

With THE AMERICAN FARMER one year, $1.15.

CROSS-BREEDING AND HYBRIDIZING: the Philosophy of the Crossing of Plants, considered with Reference to their Cultivation. By L. H. Bailey—Combines the results of faithful study and exhaustive practical experiment in a style simple yet comprehensive; 40 cents.

With THE AMERICAN FARMER one year, $1.25.

ENSILAGE AND THE SILO—Conserved cattle food. All about preserved fodder. The experience of 50 ensilage farmers. What ensilage is. Construction of silos. The perfect ensilage. How to grow it. Feeding, etc. Illustrated. Paper, 20 cents.

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THE NEW CELERY CULTURE—Abstracts of articles on the latest and best methods of growing celery for profit. It particularly details the "new culture," which does away with the laborious and expensive ridging system. Paper, 20 cents.

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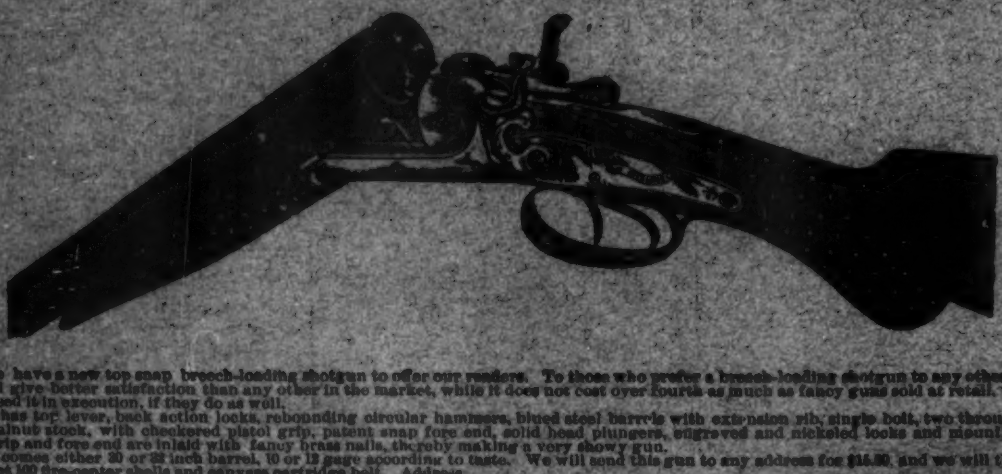
MILK: Making and Marketing—Being an illustrated account of the methods, herds, and appliances of several remarkably successful milk-producing farms. Paper, 20 cents.

With THE AMERICAN FARMER one year, $1.15.

To subscribers of THE AMERICAN FARMER only will the above books be furnished, postage prepaid, at these prices.

NEW TOP-SNAP BREECH-LOADER.



We have a new top snap breech-loading shotgun to offer our readers. To those who prefer a breech-loading shotgun to any other, this firearm will give better satisfaction than any other in the market, while it does not cost over fourth as much as fancy guns sold at retail, which will not exceed it in execution, if they do as well.

It has top lever, back action locks, rebounding circular hammers, blued steel barrels with extension rib, single bolt, two through lumps, oiled walnut stock, with checkered pistol grip, patent snap fore end, solid head plungers, engraved and nickeled locks and mountings. The pistol grip and fore end are inlaid with fancy brass nails, thereby making a very showy gun.

It comes either 30 or 32 inch barrel, 10 or 12 gage according to taste. We will send this gun to any address for $15.50, and we will throw in as a present 100 fire-center shells and canvass cartridge belt. Address

THE AMERICAN FARMER, Washington, D. C.